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Subject Name: Air Conducting & Acoustics
Subject Code:68763

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Chapter-02
Chapter Name: Air conditioning ducting system.

- 2.1 Define duct shape.
- 2.2 Mention duct size.
- 2.3 Describe pressure loses in air distribution system. 2.4 Define the supply & return duct system.
- 2.5 Define duct fittings & terminal units.
- 2.6 Mention duct construction & reinforcement.

What do you mean by Duct??

Question: What do you mean by Duct??

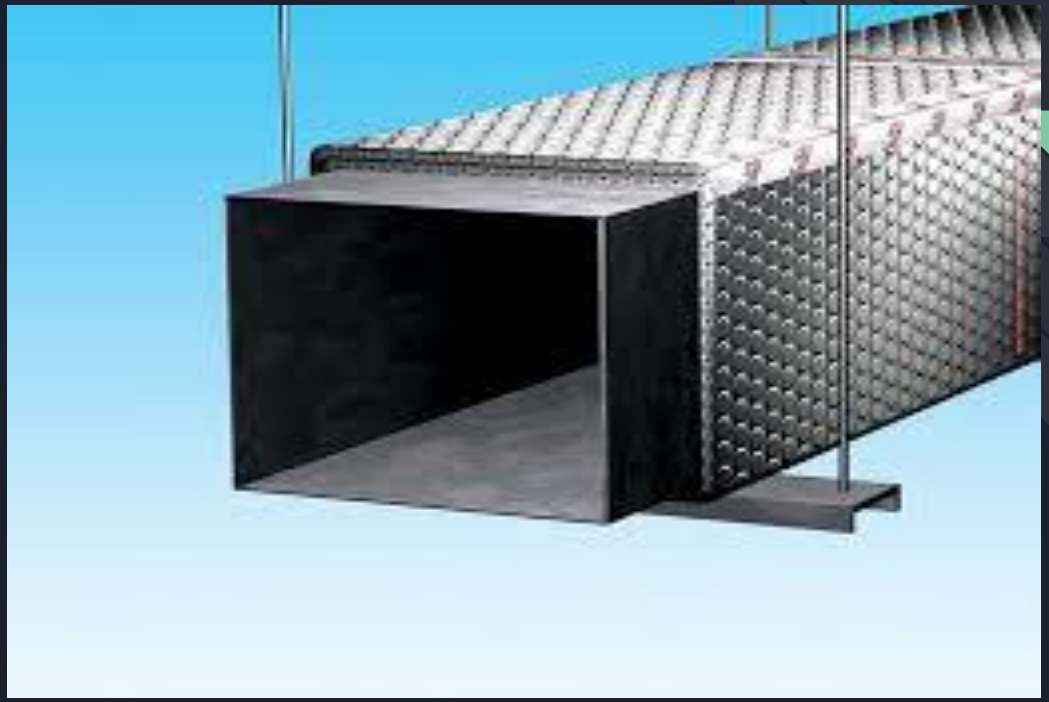
Answer:

Ducts are conduits or passages used in heating, ventilation, and **air conditioning** (**HVAC**) to deliver and remove **air**. The needed airflows include, for example, supply **air**, return **air**, and exhaust **air**. **Ducts** commonly also deliver ventilation **air** as part of the supply **air**. ... A **duct** system is also called **ductwork**

Question: What do you mean by Duct Shape??

Answer: Duct Shape means mainly Rectangular, Circular and Squre Shape Duct.

Rectangular Shape Duct



Answer: Duct Shape means mainly Rectangular, Circular and Squre Shape Duct.

Circular Shape Duct

Answer: Duct Shape means mainly Rectangular, Circular and Squre Shape Duct.

Square **Shape Duct**

Question: Do you Know about Duct Size??

FIELD DUCT SIZING CHART

FIELD DUCT SIZING CHART

ROUND DUCT SIZE ESTIMATE

Flexible Duct

Duct Size	Design Airflow
5"	50
6"	75
7"	110
8"	160
9"	225
10"	300
12"	480
14"	700
16"	1000
18"	1300
20"	1700

Round Metal Pipe

Duct Size	Design Airflow
5"	50
6"	85
7"	125
8"	180
9"	240
10"	325
12"	525
14"	750
16"	1200
18"	1500
20"	2000

FIELD DUCT SIZING CHART

RECTANGULAR DUCT SIZE ESTIMATE

Design CFM	Duct Height - Net inside dimension in inches									
	4"	CFM	6"	CFM	8"	CFM	10"	CFM	12"
60	6x4	60	4x6	90	4x8	120	4x10	150	4x12
90	8x4	110	6x6	160	6x8	215	6x10	270	6x12
120	10x4	160	8x6	230	8x8	310	8x10	400	8x12
150	12x4	215	10x6	310	10x8	430	10x10	550	10x12
180	14x4	270	12x6	400	12x8	550	12x10	680	12x12
210	16x4	320	14x6	490	14x8	670	14x10	800	14x12
240	18x4	375	16x6	580	16x8	800	16x10	950	16x12
270	20x4	430	18x6	670	18x8	930	18x10	1100	18x12
300	22x4	490	20x6	750	20x8	1060	20x10	1250	20x12
330	24x4	540	22x6	840	22x8	1200	22x10	1400	22x12
		600	24x6	930	24x8	1320	24x10	1600	24x12
		650	26x6	1020	26x8	1430	26x10	1750	26x12
		710	28x6	1100	28x8	1550	28x10	1950	28x12
		775	30x6	1200	30x8	1670	30x10	2150	30x12
40	21/2 x10			1300	32x8	1800	32x10	2300	32x12
70	21/2 x14			1400	34x8	1930	34x10	2450	34x12
150	21/2 x30			1500	36x8	2060	36x10	2600	36x12
		100	31/2 x14			2200	38x10	2750	38x12
		220	31/2 x30			2350	40x10	2900	40x12
								3050	42x12

Rectangular sheet metal duct + .07" on most metal duct calculators

Question: Do you Know about pressure loses in air distribution system??

Pressure loss due to below reason

1. **Pressure loss due to friction in ducts**

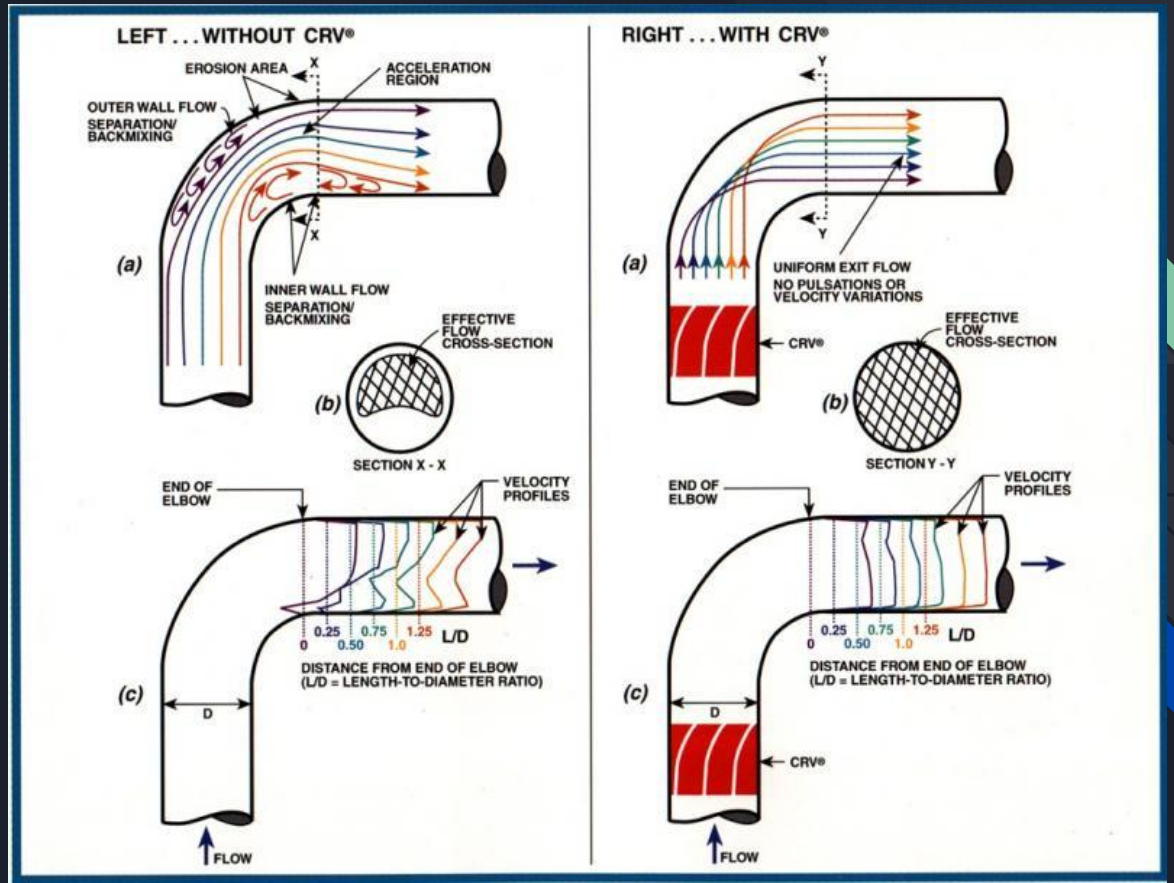
The pressure is lost due to friction between the moving particles of the fluid and the interior surfaces of a duct. This is termed as friction loss.

2. **Pressure loss due to change in direction**

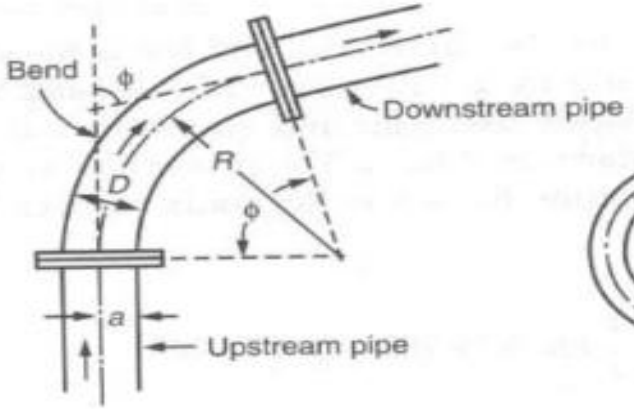
Pressure is also lost dynamically at the changes of direction such as in bends, elbows, etc. and at the cross-section changes of the duct. This is termed as dynamic loss.

3)**Pressure loss due to Enlargement in area**
4)**Pressure loss due to Contraction in area**
5)**Pressure Loss at Suction and Discharge of Duct**
6) Pressure Loss due to Obstruction in duct
Pressure losses also occur due to various obstructions in path of air flow from fan to outlet

Pressure loss due to Change in direction



Pressure drop in bends and fittings



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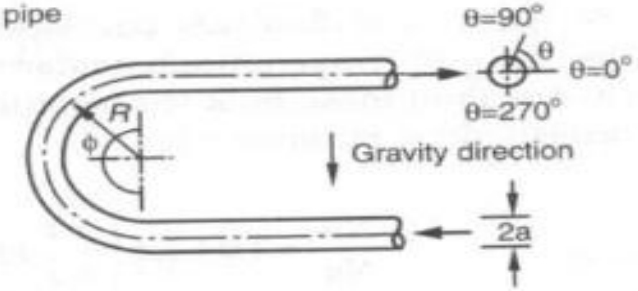

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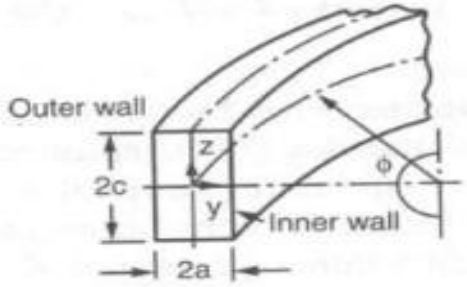

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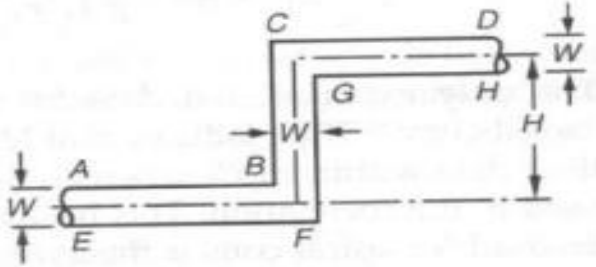

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