

PCD

Polyvinyl Coated Ductwork



For Underground Air Ducts and
Fume Exhaust Systems

Some manufacturers refer to PCD
As PVS. Both are basically the same
and work identically.



UNIVERSAL SPIRAL AIR

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UNIVERSAL SPIRAL AIR

Manufacturer of Spiral, Oval and Rectangular Duct Systems

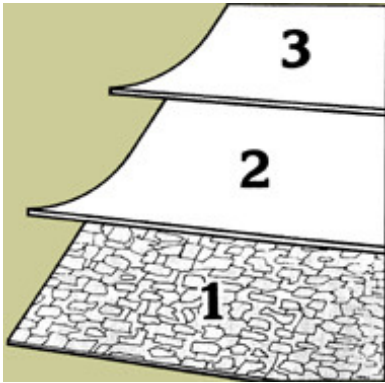
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What is PCD?

The PCD manufacturing process begins with (1) prime, hot-dipped galvanized steel that is cleaned and fire treated. Then (2) a special epoxy primer is bonded to both sides of the metal. Finally, (3) a 4-mil polyvinyl coating is heat-fused to one side (4 x 1) or both sides (4 x 4).

PCD is used for underground ductwork and as an alternative to the use of stainless steel in fume exhaust systems.

4 x 1 PCD For Underground Duct Systems

4 x 1 PCD has the 4 mils of polyvinyl coating on the outside to provide protection against corrosion from the soil. (For fume exhaust PCD, see the last page of this brochure.)

By combining the strength of steel and the chemical inertness of plastic, PCD Ductwork is both lightweight and corrosion and weather-resistant. PCD will not rust, chip, crack, peel, corrode or produce odors. Although light in weight, PCD Ductwork is strong enough to walk on and will not collapse under concrete.

4 x 4 PCD For Fume Exhaust Systems

PCD is an ideal material for many fume exhaust applications. Combining the strength of steel with the chemical inertness of plastic PCD offers completely integrated systems with diameters from 4" - 60" spiral pipe and all standard and special fittings that may be required. The assembly of the system is completed by the use of PCD duct sealer, PCD tape and stainless steel screws.

TEMPERATURES

Practical usage range is from -30°F to 200°F.

LIMITATIONS – (See PVS lab test data at the back of this catalog)

PCD has been used with great success for many major exhaust systems. However, it is up to the user to determine the suitability of PCD for any particular job. Samples will be provided upon request.

WORKING WITH PCD

PCD is rugged, durable material that will take ordinary handling and shipping without damage. It can be cut and formed with regular sheet metal equipment and tools with no harm to the coating. Even the largest diameter ducts are easily cut with portable metal-cutting saber saws or circular saws.

CONNECTIONS

A PCD connector should always be used for connecting two sections of duct. This provides a permanently corrosion-proof joint. Use stainless steel sheet metal screws every 6" around the

circumference. Ends of fittings are made to slip inside duct, so where a fitting is used, a connector is not needed. All PCD fittings are accurately sized and fabricated with stainless steel fasteners.

SEALING

All joints should be wrapped to prevent air leakage and to keep dirt and sand out of the duct system. PCD Tape is recommended as it is ideal for this usage. It has superior adhesive qualities, even in extremely hot or extremely cold weather.

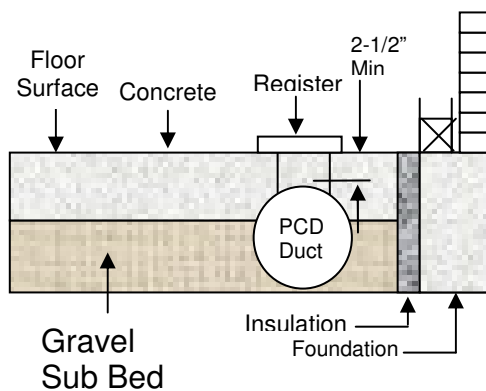
Also available, as an insurance factor, is PCD Duct Sealer – a flexible and self-curing air pressure sealant. An additional coating of sealant should be applied over the joint and screws to assure an air tight connection. This can be applied from one-gallon cans by brush application. It provides a positive sealing of joints and screw holes. PCD Duct Sealer may also be obtained in a cartridge package (or caulk tube). Approximate coverage is 375 lin. Ft. per

gal. @ 1/4" bead. Tape is then applied to finish the connection. PCD tape is available in rolls.

SCRATCHED SURFACES

If, through a field accident, the PCD coating is scratched or scarred so as to expose the base metal, repair with PCD paint. This can be sprayed or brushed on. PCD Tape can be used to cover minor scratches.

PCD Installation Guide – Underground Ducts



around the duct making sure there are no gaps, and tamping in place is a recommended practice.

No cement is needed to fill in around the duct, since the tamped fill holds the duct in place and the plastic coating prevents ground corrosion of the galvanized steel. This plastic coating is resistant to any minerals or salts that may be in the backfill soil. PCD Duct will not “float” when backfilled to within 2” of the top of the duct. Concrete is then poured so that all “tie-down” work is eliminated.

INSTALL ABOVE WATER

The PCD duct system is not designed to be waterproof. Installation must be made safely above the water table. Duct should not be placed where water infiltration may occur.

DEPTH

The top of the duct can extend into the cement, leaving a minimum of 2-1/2” of cement above the top, or the duct can be placed well below the cement. However, the duct should not be placed so deep that the weight on it will exceed the load capacities.

TRENCHING AND BACKFILL

After the excavation has been made, no special bedding need be used for PCD Duct. It can rest right on the ground, or be set in sand or light aggregate. Pea gravel or sand (or the material taken from the trench, if equivalent) can be used to backfill. Spread the backfill material evenly

CAUTION: When backfilling or grading, care should be taken not to dump or push heavy loads directly on the duct, nor should heavy equipment be allowed to run over the duct. It can be crushed under thoughtless abuse.

LARGE DIAMETER DUCTS

Special care should be taken with large diameter ducts. Backfilling and tamping should be done without damage to the ducts. Temporary bracing can be used inside the ducts or angle rings can be permanently installed on the ducts to provide strength and rigidity. Rings should be primed and coated with PCD paint.

PCD Underground Ducts
Size, Gauge and Weight Table

Dia.	Ga.	Wgt/Ft	Dia.	Ga.	Wgt/Ft
4"	26	1.1	28"	20	13.9
5"	26	1.4	30"	20	14.8
6"	26	1.6	32"	20	15.8
7"	26	1.9	34"	18	22.3
8"	26	2.2	36"	18	23.8
9"	24	2.5	38"	18	25.0
10"	24	3.4	40"	18	26.2
12"	24	4.2	42"	18	27.5
14"	24	4.9	44"	18	28.8
16"	24	5.6	46"	18	30.2
18"	22	7.6	48"	18	31.5
20"	22	8.5	50"	18	32.8
22"	22	9.3	52"	18	34.1
24"	22	10.1	56"	18	36.8
26"	20	12.9	60"	18	39.5

LOAD SPECIFICATIONS

#1 Standard 4" – 8" 400 lbs./Linear Ft.
 10" – 12" 600 lbs./Linear Ft.
 # 2 Corrugated 14" – 36" 1800 lbs./Linear Ft.

*All ducts 14" or more in diameter are corrugated for extra strength.

Where deeper burial or heavier loading is required duct gauges can be increased. Also angle rings and/or special bracing can be used.

DURABILITY

PCD needs no protection in earth from sand, concrete or plaster. It is not affected by the minerals and salts found in normal backfilling materials. PCD has also passed thousands of hours of accelerated salt spray, humidity cabinet, and water immersion tests with no loss of adhesion or corrosion resistance.

FLAT SHEETS AVAILABLE

Also available in gauges from 26ga to 18ga are flat sheets or wide coils for making hoods or forming rectangular duct systems.

SPECIFICATIONS for PCD Underground Air Ducts

All ducts shall be PCD formed into spiral tubes. All couplings and fittings shall be factory fabricated of PCD.

All joint connections shall be stainless steel screw fastened and taped in accordance with manufacturer's recommendations to assure an air-tight system.

Any damage to the coating shall be repaired with PCD touch-up paint or PCD aerosol spray. All ducts and fittings shall be installed and back-filled according to manufacturer's recommendations, using pea gravel, sand or the equivalent with good compaction.

SPECIFICATIONS for PCD Fume Exhaust Duct Systems

Fume Exhaust system shall be PCD 4 x 4 manufactured by Universal Spiral Air (USA). Gauges shall be standard SMACNA gauges for low pressure systems.

Round ducts shall be roll-formed spiral pipes. Fittings shall be factory fabricated with stainless steel rivets. All fitting seams shall be caulked on the inside with PCD duct sealer.

All connecting joints are slip-fit. Apply sealer to all raw edges and male ends. Secure joint connection by installing stainless steel sheet metal screws with a minimum spacing around of 6". Repair any damage to the coating with PCD touch-up paint or PCD aerosol spray.



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PCD Spiral Duct - Weight & Gauge Chart

Dia	26 Gauge lbs/ft	24 Gauge lbs/ft	22 Gauge lbs/ft	20 Gauge lbs/ft	18 Gauge lbs/ft
4"	1.1	1.4	1.7	2	2.6
5"	1.4	1.7	2.1	2.5	3.2
6"	1.6	2	2.5	3	4
7"	1.9	2.4	2.9	3.5	4.7
8"	2.2	2.8	3.4	4	5.3
9"	2.5	3.1	3.8	4.5	6
10"	2.7	3.5	4.3	5	6.6
12"	3.3	4.2	5.1	6	7.9
14"	3.8	4.9	5.9	7	9.2
16"	4.4	5.6	6.7	7.9	10.5
18"	5	6.2	7.6	8.9	11.8
20"	5.3	7	8.5	10	13.2
22"		7	9.3	11	14.5
24"		8.4	10.1	11.9	15.8
26"		9.1	11	12.9	17.1
28"		9.7	11.8	13.9	18.4
30"		10.4	12.6	14.8	19.7
32"		11.1	13.5	15.8	21
34"		11.9	14.4	16.9	22.3
36"		12.7	15.3	18	23.8
38"			16.1	18.9	25
40"			16.8	19.8	26.2
42"			17.7	20.8	27.5
44"			18.5	21.8	28.8
46"			19.3	22.8	30.2
48"			20.3	23.7	31.5
50"			21.1	24.9	32.8
52"			21.9	25.8	34.1
56"			23.5	27.7	36.8
60"			25.3	29.7	39.5

Underground PCD- Minimum gauge *

Diameter	Gauge
4" thru 8"	26
9" thru 16"	24
18" thru 24"	22
26" thru 32"	20
34" thru 48"	18
50" thru 60"	CALL

* Reinforcements may be required on diameters over 48", call factory.

Above Ground PCD- -4in W.G. - unstiffened

Diameter	Gauge
4" thru 10"	26
11" thru 12"	24
14" thru 16"	22
18" thru 20"	20
22" thru 24"	18

Gauges per 2005 SMACNA

** Stiffeners required on diameters larger than 24"

Call USA for availability & prices of ducts in sizes not shown.
Standard length of duct is 10 feet.

** The following prefixes should be used to specify material when ordering:
P41 = PCD 4x1 P44 = PCD 4x4 For Example: P41-E90 1.0



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Spiral Product Codes

SP	Spiral Pipe	TEES	
ELBOWS		T90	Straight Tee
E90-1.0	90 1.0 radius	T90C	Conical Tee
E90-1.5	90 1.5 radius	T90X	Straight Cross
E45-1.0	45 1.0 radius	T90CX	Conical Cross
E45-1.5	45 1.5 radius	T45	Lateral 45
E90DS	90 1.5 radius Die Stamp	T45C	Lateral Conical
E45DS	45 1.5 radius Die Stamp	T45X	Lateral Cross
E90MW	90 short radius Maplewood	T45XC	Lateral Cross, Conical
E45MW	45 short radius Maplewood	TLL	Low Loss Tee
E90HT	Gored Heel Tap Elbow	TLLx	LowLoss Cross
E90MT	Mitered 90	T90 w/ RED	Straight Tee w/ Reducer
FITTINGS		T90C w/ RED	Conical Tee w/ Reducer
RED	Concentric Reducer (Taper)	T90X w/ RED	Straight Cross w/ Reducer
ECC-RED	Eccentric Reducer (Taper)	T90CX w/ RED	Conical Cross w/ Reducer
OFST	Offset	T45 w/ RED	Lateral 45 w/ Reducer
OFST-R	Reducing Offset	T45C w/ RED	Lateral Conical w/ Reducer
SQRND	Square to Round	T45X w/ RED	Lateral Cross w/ Reducer
SAD90	Saddle Tap	T45CX w/ RED	Lateral Cross, Conical w/ Reducer
SAD90C	Saddle Tap 90 Conical	TLL w/ RED	Low Loss Tee w/ Reducer
SAD45	Saddle Tap 45	TLLX w/ RED	LowLoss Cross w/ Reducer
SHTP-C	Shoe Tap - Continuous Flange	RT90	Reducing Body, Straight Tee
SHTP-F	Shoe Tap - Flap Style	RT90C	Reducing Body, Conical Tee
C	Connector Male (Pipe to Pipe)	RT90X	Reducing Body, Straight Cross
FITT-C	Connector Female (Fitting to Fitting)	RT90CX	Reducing Body, Conical Cross
BSHG	Bushing (Insulation Stop)	RT45	Reducing Body, Lateral 45
RB	Register Box	RT45C	Reducing Body, Conical Lateral
45RB	45deg Register Box	RT45X	Reducing Body, Lateral Cross
EBB	Elbow Box	RT45CX	Reducing Body, Conical Lateral Cross
EBB-SR	Elbow Box w/ Square to Round	RTLL	Reducing Body, Low Loss Tee
EB	Elbow Boot	RT90LLX	Reducing Body, LowLoss Cross
CEB	Center End Boot	Y45	Y-Branch
ACCESSORIES		Y45R	Reducing Y-Branch
PCD Touch-Up	PCD Touch-Up	BHTEE	Bullhead Tee
PCD Tape	PCD Tape	RBHTEE	Reducing Bullhead Tee
PCD Duct Sealer	PCD Duct Sealer		



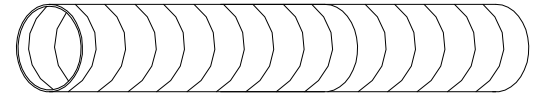
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PCD Spiral Pipe

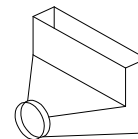


PCD-SP

<p>Elbow 90° 1.0 or 1.5 Radius</p> <p>E90 1.0 E90 1.5</p>	<p>Elbow 45° 1.0 or 1.5 Radius</p> <p>E45 1.0 E45 1.5</p>	<p>Elbow 90° Maplewood</p> <p>E90MW</p>	<p>Elbow 45° Maplewood</p> <p>E45MW</p>	<p>Elbow 90° Heel Tap</p> <p>E90HT</p>
<p>Elbow 90° Diestamp</p> <p>*Special Order E90DS</p>	<p>Elbow 45° Diestamp</p> <p>*Special Order E45DS</p>	<p>Elbow 90° Mitered</p> <p>E90MT</p>	<p>Concentric Reducer (Taper)</p> <p>RED</p>	<p>Eccentric Reducer (Taper)</p> <p>ECC-RED</p>
<p>Offset</p> <p>OFST</p>	<p>Offset - Reducing</p> <p>OFST-R</p>	<p>Square to Round</p> <p>SQRND</p>	<p>Shoe Tap - Continuous Flange</p> <p>SHTP-C</p>	<p>Shoe Tap - Flap Style</p> <p>SHTP-F</p>
<p>Saddle Tap 90°</p> <p>SAD90</p>	<p>Saddle Tap 45°</p> <p>SAD45</p>	<p>Saddle Tap 90° Conical</p> <p>SAD90C</p>	<p>Pipe Coupler - Male</p> <p>C</p>	<p>Pipe Coupler - Female</p> <p>C-FITT</p>
<p>End Cap</p> <p>EC</p>	<p>Bushing Insulation Stop</p> <p>BSHG</p>	<p>Accuflange</p> <p>ACF</p>	<p>Register Box</p> <p>RB</p>	<p>45° Register Box</p> <p>45RB</p>
<p>PCD Touch-Up</p> <p>PCD Touch-Up</p>	<p>PCD Tape</p> <p>PCD Tape</p>	<p>PCD Duct Sealer</p> <p>PCD Duct Sealer</p>	<p>Elbow Box</p> <p>EBB</p>	<p>Elbow Box w/ Square to Round</p> <p>EBB-SR</p>

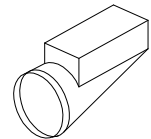
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For example: P41-E90 1.0

Elbow Boot

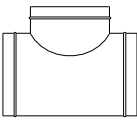
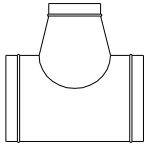
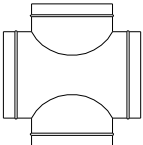
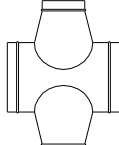
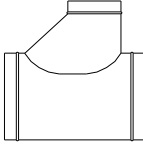
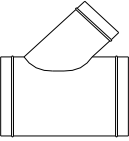
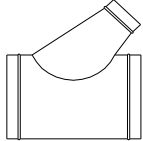
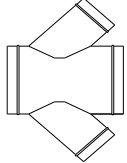
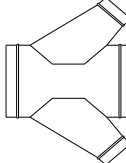
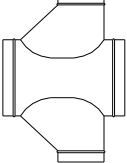
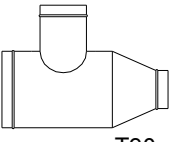
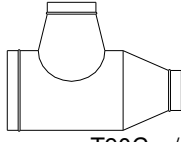
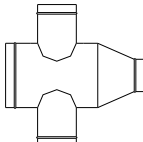
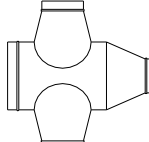
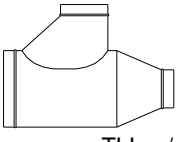
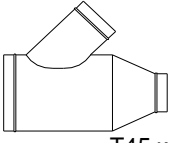
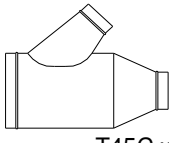
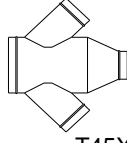
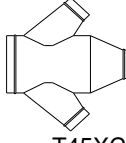
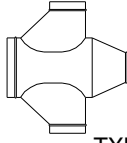
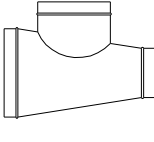
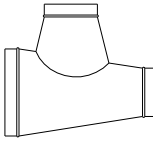
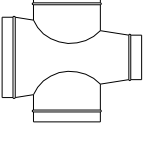
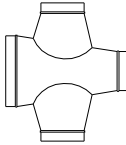
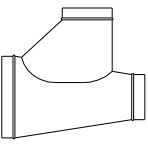
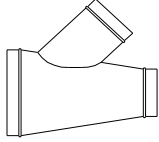
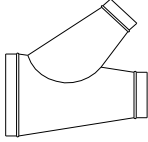
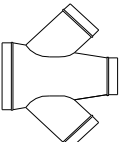
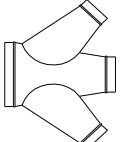
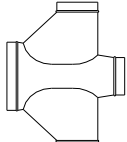
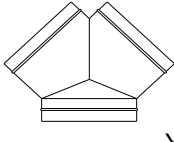
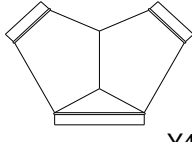
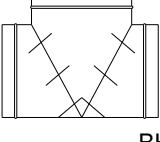
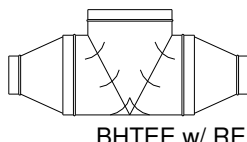


EB

Center End Boot



CEB

Straight Tee  T90	Conical Tee  T90C	Straight Cross  T90X	Conical Cross  T90C	Low Loss Tee  TLL
Lateral 45° Tee  T45	Conical Lateral Tee  T45C	Lateral Cross  T45X	Conical Lateral Cross  T45XC	Low Loss Cross  TXLL
Straight Tee w/ Reducer  T90 w/ RED	Conical Tee w/ Reducer  T90C w/ RED	Straight Cross w/ Reducer  T90X w/ RED	Conical Cross w/ Reducer  T90XC w/ RED	Low Loss Tee w/ Reducer  TLL w/ RED
Lateral 45° Tee w/ Reducer  T45 w/ RED	Conical Lateral Tee w/ Reducer  T45C w/ RED	Lateral Cross w/ Reducer  T45X w/ RED	Conical Lateral Cross Tee w/ Reducer  T45XC w/ RED	Low Loss Cross w/ Reducer  TXLL w/ RED
Reducing Body Straight Tee  RT90	Reducing Body Conical Tee  RT90C	Reducing Body Straight Cross  RT90X	Reducing Body Conical Cross  RT90C	Reducing Body Low Loss Tee  RTLL
Reducing Body Lateral 45° Tee  RT45	Reducing Body Conical Lateral Tee  RT45C	Reducing Body Lateral Cross  RT45X	Reducing Body Conical Lateral Cross  RT45XC	Reducing Body Low Loss Cross  RTXLL
45° Y-Branch  Y45	45° Y-Branch w/ Reducers  Y45R	Bullhead Tee  BHTEE	Bullhead Tee w/ Reducers  BHTEE w/ RED	

** The following prefixes should be used
 to specify material when ordering:
 P41 = PCD 4x1 P44 = PCD 4x4
 For example: P41-E90 1.0



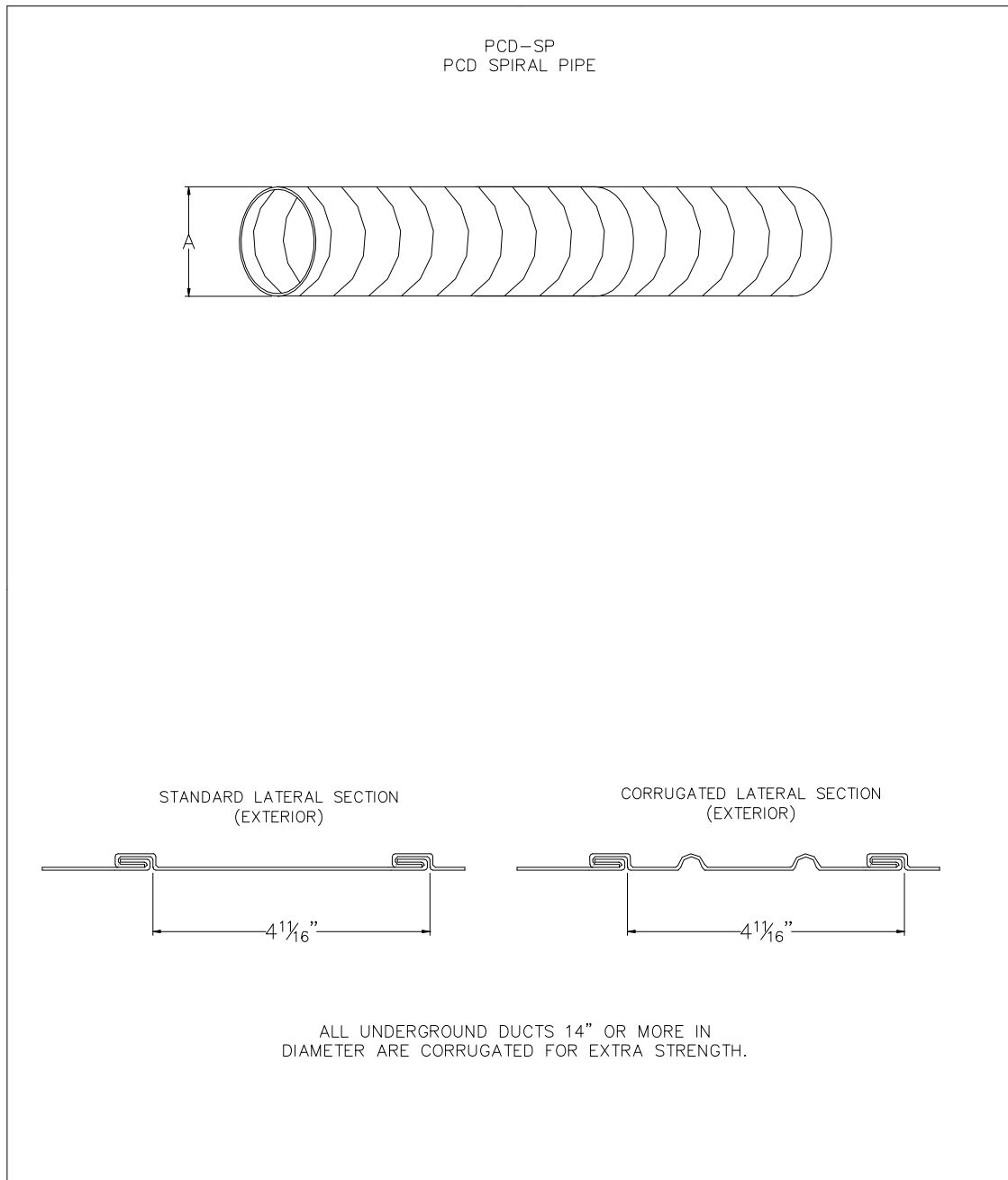
UNIVERSAL SPIRAL AIR

Manufacturer of Spiral, Oval and Rectangular Duct Systems

West Branch: 2735 West River Dr NW, Walker MI 49544
616-475-5905 Fax: 616-475-6433 Email: sales@usaduct.com

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734-261-0410 Fax: 734-261-0435 Email: detsales@usaduct.com

PCD ROUND





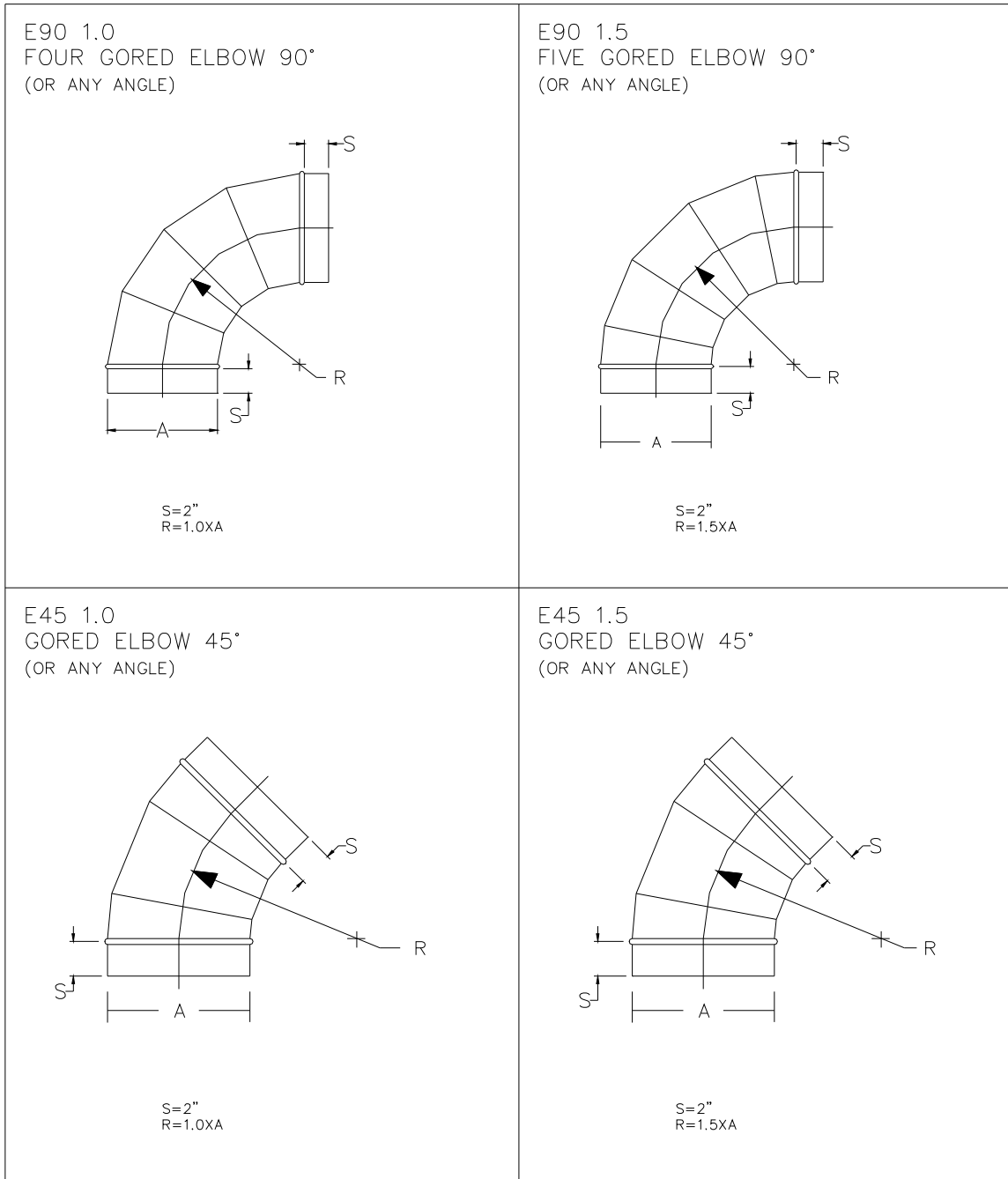
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PCD ELBOWS





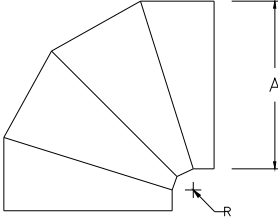
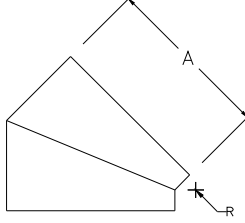
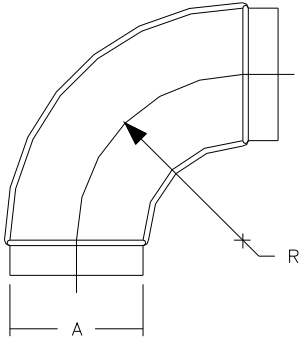
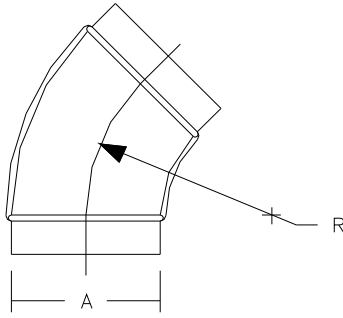
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PCD ELBOWS

<p>E90MW MAPLEWOOD ELBOW 90°</p>  <p>R=SHORT THROAT LOW PRESSURE FITTING STANDARD FITTING</p>	<p>E45MW MAPLEWOOD ELBOW 45°</p>  <p>R=SHORT THROAT LOW PRESSURE FITTING STANDARD FITTING</p>
<p>E90DS DIE STAMPED 90°</p>  <p>R=1.5XA A=4" THRU 10" SPECIAL ORDER</p>	<p>E45DS DIE STAMPED 45°</p>  <p>R=1.5XA A=4" THRU 10" SPECIAL ORDER</p>



UNIVERSAL SPIRAL AIR

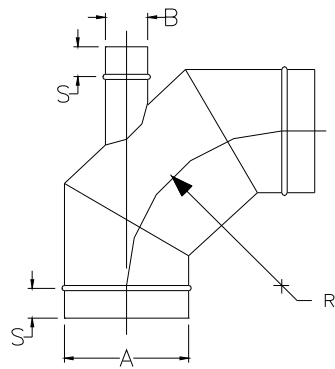
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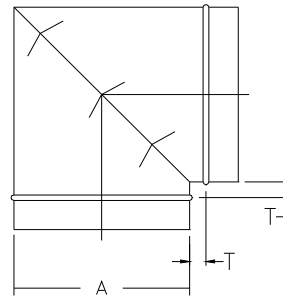
PCD ELBOWS

E90HT
HEEL TAP ELBOW



S=2"
R=1.5XA

E90MT
MITERED 90°



T=4"
WITH OR WITHOUT TURNING VALVES
CALL TO CONFIRM DIMENSIONS WHEN A>36"



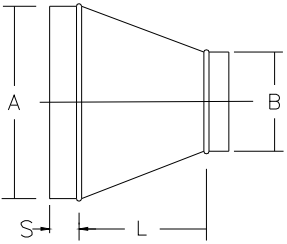
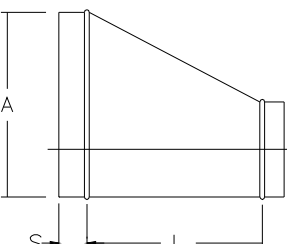
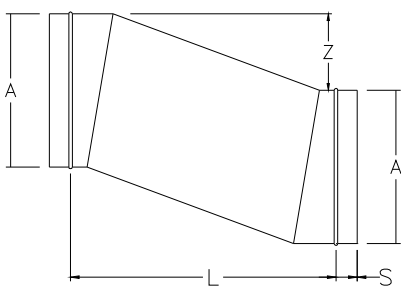
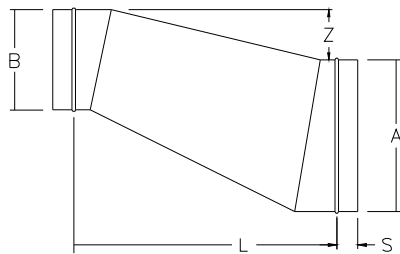
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PCD REDUCERS & OFFSETS

<p>RED CONCENTRIC REDUCER</p>  <p>$S=2"$ $L=A-B+4"$</p>	<p>ECC-RED ECCENTRIC REDUCER</p>  <p>$S=2"$ $L=A-B+6"$</p>
<p>OFST OFFSET</p>  <p>$S=2"$ $L=(Z*3)+(A/2)$ $Z=CUSTOMER SPECIFIED$</p>	<p>OFST-R REDUCING OFFSET</p>  <p>$S=2"$ $L=(Z*3)+(A/2)$ $Z=CUSTOMER SPECIFIED$</p>



UNIVERSAL SPIRAL AIR

Manufacturer of Spiral, Oval and Rectangular Duct Systems

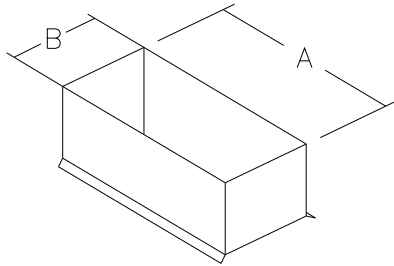
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PCD REGISTER BOXES

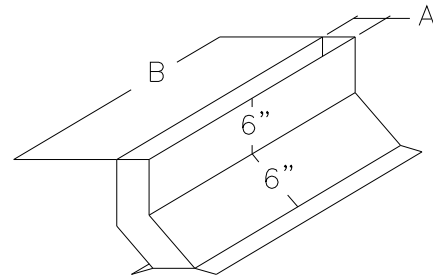
ALL UNDERGROUND BOXES ARE SUPPLIED W/ REMOVABLE CAPS

PCD-RB
REGISTER BOX



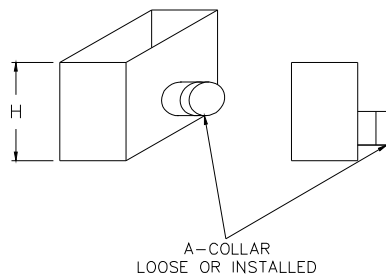
CUT ON JOB TO FIT PIPE DIAMETER OR
ORDERED TO FIT PIPE SIZE

PCD-45RB
45° REGISTER BOX



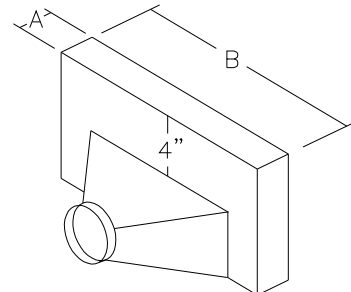
CUT ON JOB TO FIT PIPE DIAMETER OR
ORDERED TO FIT PIPE SIZE

PCD-EBB
ELBOW BOX



H=16" STANDARD FOR 5" - 8" A-COLLAR
OTHER HEIGHTS ALSO AVAILABLE

PCD-EBB SR
ELBOW BOX w/
SQUARE TO ROUND





UNIVERSAL SPIRAL AIR

Manufacturer of Spiral, Oval and Rectangular Duct Systems

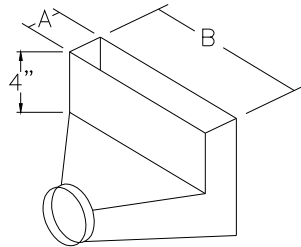
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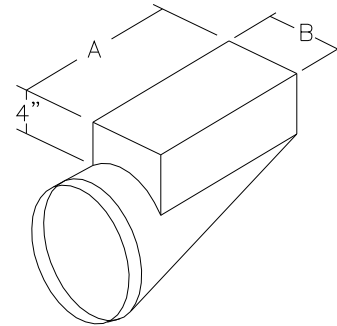
PCD REGISTER BOXES & ACCESSORIES

ALL UNDERGROUND BOXES ARE SUPPLIED W/ REMOVABLE CAPS

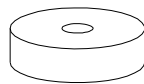
PCD-EB
ELBOW BOOT



PCD-CEB
CENTER END BOOT



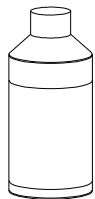
PCD ACCESSORIES



PCD TAPE

Strong, permanent, superior adhesive in hot & cold weather. Ideal for underground.

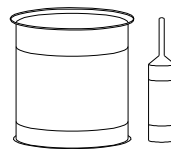
CASE QTY: 24 rolls of 2" x 108ft



PCD TOUCH-UP

Quick scratch repair, air drying, special formula of poly-vinyl chloride

CASE QTY: 6 Cons



PCD DUCT SEALER

Excellent sealing for high pressure or fume exhaust joints & fittings - able to withstand the most corrosive atmosphere.

CASE QTY: 4 gallons or 12 tubes



UNIVERSAL SPIRAL AIR

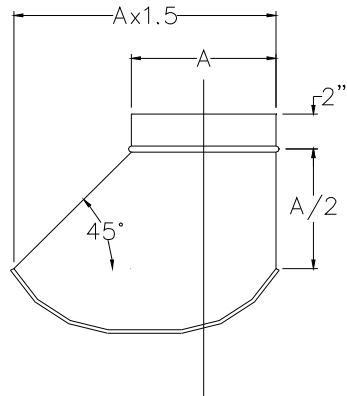
Manufacturer of Spiral, Oval and Rectangular Duct Systems

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616-475-5905 Fax: 616-475-6433 Email: sales@usaduct.com

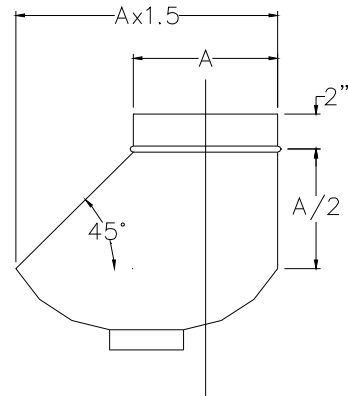
East Branch: 37050 Plymouth Rd., Livonia MI 48150
734-261-0410 Fax: 734-261-0435 Email: detsales@usaduct.com

PCD SHOE TAPS

SHTP-C
SHOE TAP - CONTINUOUS FLANGE



SHTP-F
SHOE TAP - FLAP STYLE





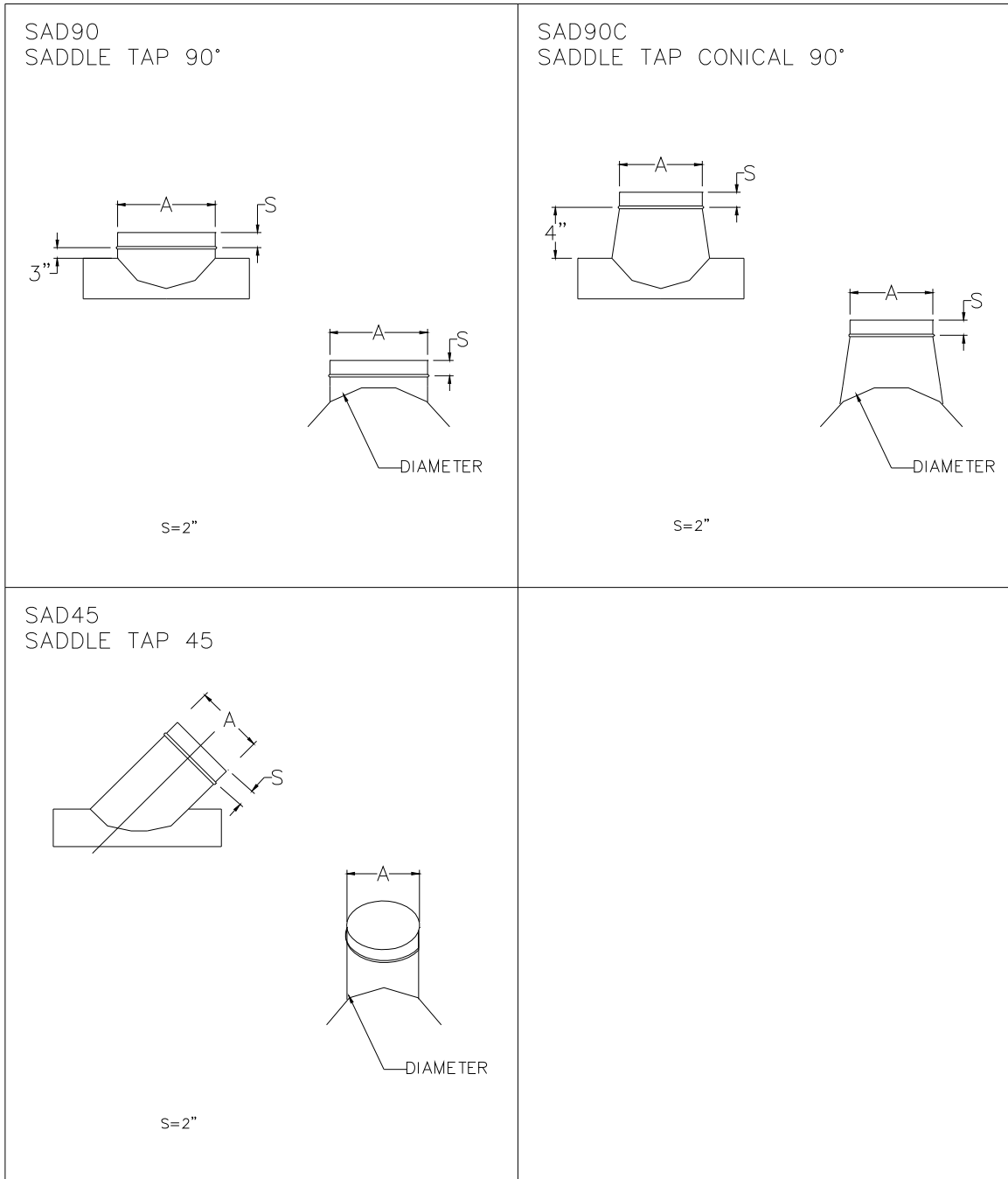
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PCD SADDLE TAPS





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PCD CONNECTORS

<p>C PIPE COUPLER</p> <p>MALE FEMALE</p> <p>5.3" 5.3" A</p>	<p>ACFL ACCUFLANGE</p> <p>2" 1-3/8"</p>
<p>EC END CAP</p> <p>2" A</p> <p>OVAL – REPLACE "A" WITH W1xD1</p>	<p>BSHG BUSHING (INSULATION STOP)</p> <p>A B S</p> <p>S=2" SPECIFY "A" AS MALE OR FEMALE SPECIFY "B" AS MALE OR FEMALE</p> <p>OVAL – REPLACE "A" WITH W1xD1 AND "B" WITH W2xD2</p>



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PCD TEES

<p>T90 STRAIGHT TEE</p> <p>S=2" L=C+6"</p> <p>CALL TO CONFIRM DIMENSIONS WHEN A>36"</p>	<p>T90C CONICAL TEE</p> <p>S=2" L=C+10"</p> <p>CALL TO CONFIRM DIMENSIONS WHEN A>36"</p>
<p>T90X STRAIGHT TEE, CROSS</p> <p>S=2" L=C+6"</p> <p>CALL TO CONFIRM DIMENSIONS WHEN A >36"</p>	<p>T90CX TEE, CONICAL, CROSS</p> <p>S=2" L=LARGEST TAP+10"</p> <p>CALL TO CONFIRM DIMENSIONS WHEN A>36"</p>



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PCD TEES

<p>T45 TEE, LATERAL</p> <p>$S=2"$ $L=C(1.5)+6"$</p> <p>CALL TO CONFIRM DIMENSIONS WHEN $A>36"$</p>	<p>T45C TEE, CONICAL LATERAL</p> <p>$S=2"$ $L=C(1.5)+10"$</p> <p>CALL TO CONFIRM DIMENSIONS WHEN $A>36"$</p>
<p>T45X TEE, LATERAL CROSS</p> <p>$S=2"$ $L=LARGEST\ TAP(1.5)+6"$</p> <p>CALL TO CONFIRM DIMENSIONS WHEN $A>36"$</p>	<p>T45CX TEE, CONICAL LATERAL CROSS</p> <p>$S=2"$ $L=LARGEST\ TAP(1.5)+10"$</p> <p>CALL TO CONFIRM DIMENSIONS WHEN $A>36"$</p>



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PCD TEES

<p>TLL TEE, LOW LOSS</p> <p>S=2" Z=C/2 L=C(1.5)+6"</p> <p>CALL TO CONFIRM DIMENSIONS WHEN A>36"</p>	
<p>TLLX TEE, LOW LOSS, CROSS</p> <p>S=2" Z=C/2 L=LARGEST TAP(1.5)+6"</p> <p>CALL TO CONFIRM DIMENSIONS WHEN A>36"</p>	



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PCD TEES

<p>T90 w/ RED TEE w/ REDUCER</p> <p>S=2" RL=A-B+2" L=C+6"</p> <p>CALL TO CONFIRM DIMENSIONS WHEN A>36"</p>	<p>T90C w/ RED TEE, CONICAL w/ REDUCER</p> <p>S=2" RL=A-B+2" L=C+10"</p> <p>CALL TO CONFIRM DIMENSIONS WHEN A>36"</p>
<p>T90X w/ RED TEE, CROSS w/ REDUCER</p> <p>S=2" RL=A-B+2" L=LARGEST TAP+6"</p> <p>CALL TO CONFIRM DIMENSIONS WHEN A>36"</p>	<p>T90XC w/ RED TEE, CROSS, CONICAL w/ REDUCER</p> <p>S=2" RL=A-B+2" L=LARGEST TAP+10"</p> <p>CALL TO CONFIRM DIMENSIONS WHEN A>36"</p>



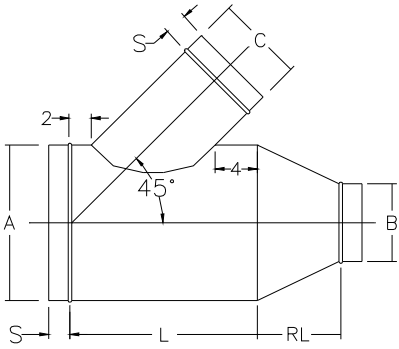
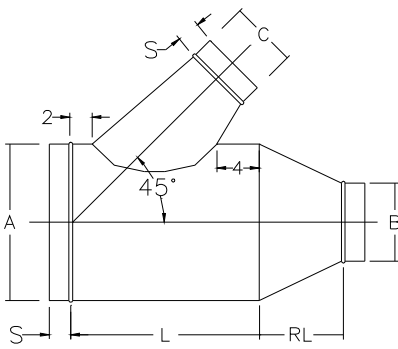
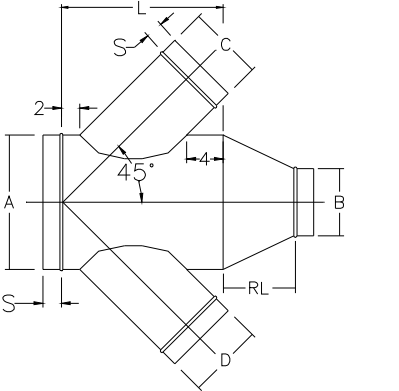
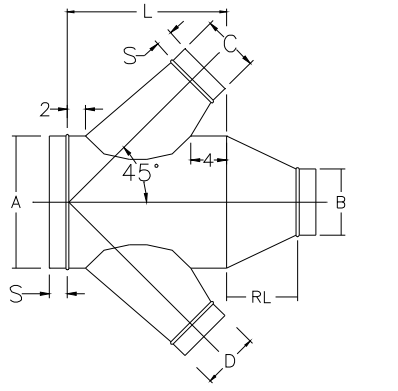
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PCD TEES

<p>T45 w/ RED TEE, LATERAL w/ REDUCER</p>  <p> $S=2''$ $RL=A-B+2''$ $L=C(1.5)+6''$ </p> <p>CALL TO CONFIRM DIMENSIONS WHEN $A>36''$</p>	<p>T45C w/ RED TEE, CONICAL, LATERAL w/ REDUCER</p>  <p> $S=2''$ $RL=A-B+2''$ $L=C(1.5)+10''$ </p> <p>CALL TO CONFIRM DIMENSIONS WHEN $A>36''$</p>
<p>T45X w/ RED TEE, CROSS, LATERAL w/ REDUCER</p>  <p> $S=2''$ $RL=A-B+2''$ $L=LARGEST\ TAP(1.5)+6''$ </p> <p>CALL TO CONFIRM DIMENSIONS WHEN $A>36''$</p>	<p>T45XC w/ RED TEE, CROSS, CONICAL LATERAL w/ REDUCER</p>  <p> $S=2''$ $RL=A-B+2''$ $L=LARGEST\ TAP(1.5)+10''$ </p> <p>CALL TO CONFIRM DIMENSIONS WHEN $A>36''$</p>



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PCD TEES

<p>TLL w/ RED TEE, LOW LOSS w/ REDUCER</p> <p> $S=2"$ $Z=C/2"$ $RL=A-B+2"$ $L=C(1.5)+6"$ </p> <p>CALL TO CONFIRM DIMENSIONS WHEN A>36"</p>	
<p>TLLX w/ RED TEE, LOW LOSS, CROSS w/ REDUCER</p> <p> $S=2"$ $Z=C/2"$ $RL=A-B+2"$ $L=LARGEST\ TAP(1.5)+6"$ </p> <p>CALL TO CONFIRM DIMENSIONS WHEN A>36"</p>	



UNIVERSAL SPIRAL AIR

Manufacturer of Spiral, Oval and Rectangular Duct Systems

West Branch: 2735 West River Dr NW, Walker MI 49544
 616-475-5905 Fax: 616-475-6433 Email: sales@usaduct.com

East Branch: 37050 Plymouth Rd., Livonia MI 48150
 734-261-0410 Fax: 734-261-0435 Email: detsales@usaduct.com

PCD TEES

<p>RT90 REDUCING BODY TEE</p> <p>$S=2''$ $L=C+(A-B)+6''$</p> <p>CALL TO CONFIRM DIMENSIONS WHEN $A>36''$</p>	<p>RT90C REDUCING BODY TEE, CONICAL</p> <p>$S=2''$ $L=C+(A-B)+10''$</p> <p>CALL TO CONFIRM DIMENSIONS WHEN $A>36''$</p>
<p>RT90X REDUCING BODY TEE, CROSS</p> <p>$S=2''$ $L=LARGEST\ TAP+(A-B)+6''$</p> <p>CALL TO CONFIRM DIMENSIONS WHEN $A>36''$</p>	<p>RT90CX REDUCING BODY TEE, CONICAL, CROSS</p> <p>$S=2''$ $L=LARGEST\ TAP+(A-B)+10''$</p> <p>CALL TO CONFIRM DIMENSIONS WHEN $A>36''$</p>



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PCD TEES

<p>RT45 REDUCING BODY TEE, LATERAL</p> <p>$S=2''$ $L=C(1.5)+(A-B)+6''$</p> <p>CALL TO CONFIRM DIMENSIONS WHEN $A>36''$</p>	<p>RT45C REDUCING BODY TEE, LATERAL, CONICAL</p> <p>$S=2''$ $L=C(1.5)+(A-B)+10''$</p> <p>CALL TO CONFIRM DIMENSIONS WHEN $A>36''$</p>
<p>RT45X REDUCING BODY TEE, LATERAL, CROSS</p> <p>$S=2''$ $L=LARGEST\ TAP(1.5)+(A-B)+6''$</p> <p>CALL TO CONFIRM DIMENSIONS WHEN $A>36''$</p>	<p>RT45CX REDUCING BODY TEE, LATERAL, CONICAL, CROSS</p> <p>$S=2''$ $L=LARGEST\ TAP(1.5)+(A-B)+10''$</p> <p>CALL TO CONFIRM DIMENSIONS WHEN $A>36''$</p>



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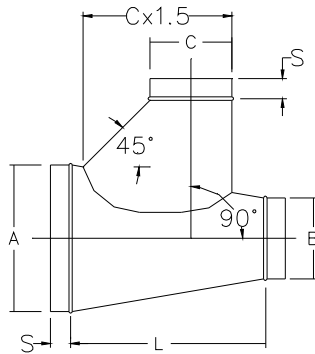
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PCD TEES

THIS STYLE AVAILABLE WHEN A or B IS GREATER THAN 8"

RTLL
 REDUCING BODY TEE, LOW LOSS

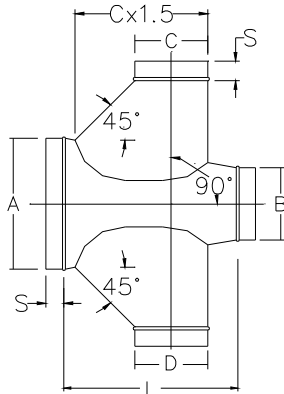


$$S=2''$$

$$L=C(1.5)+(A-B)+6''$$

CALL TO CONFIRM DIMENSIONS WHEN A>36"

RTLLX
 REDUCING BODY TEE, LOW LOSS, CROSS



$$S=2''$$

$$L=LARGEST\ TAP(1.5)+(A-B)+6''$$

CALL TO CONFIRM DIMENSIONS WHEN A>36"



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PCD TEES & WYES

<p>BHTEE TEE, BULLHEAD W/ VANES</p> <p>S=2" L=A+10; A>26"</p> <p>CALL TO CONFIRM DIMENSIONS WHEN A>36" WITH OR WITHOUT TURNING VANES</p>	<p>RBHTEE TEE, REDUCING, BULLHEAD W/ VANES</p> <p>S=2" L=A+10; A>26" TL=A-B+2"</p> <p>CALL TO CONFIRM DIMENSIONS WHEN A>36" WITH OR WITHOUT TURNING VANES</p>
<p>Y45 Y-BRANCH 45°</p> <p>S=2"</p> <p>CALL TO CONFIRM DIMENSIONS WHEN A>36"</p>	<p>Y45R REDUCING Y-BRANCH 45°</p> <p>S=2"</p> <p>CALL TO CONFIRM DIMENSIONS WHEN A>36"</p>



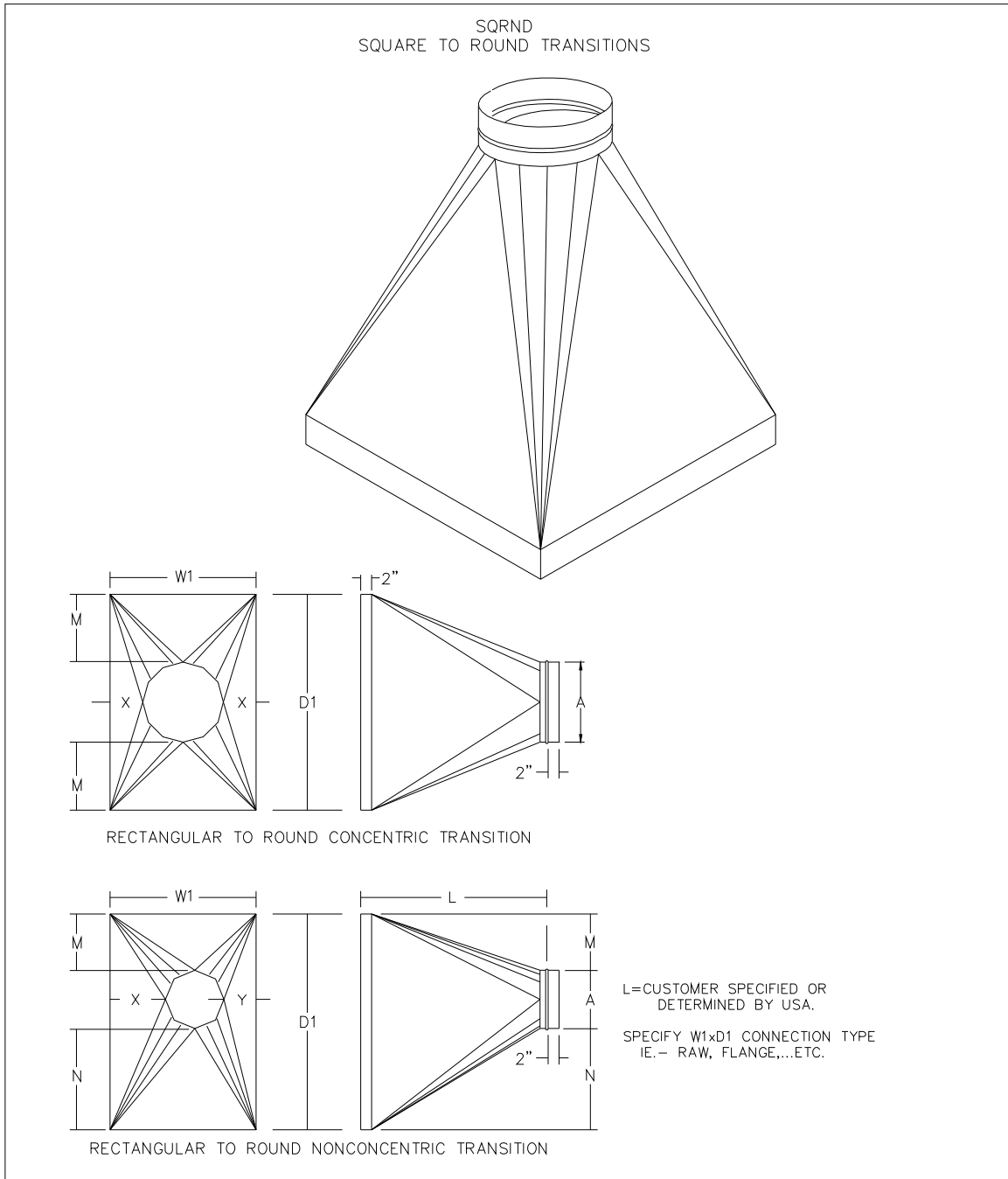
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PCD ROUND



This list of the most frequently used industrial chemicals is coded to reflect the use of P.V.S. as a recommended ducting material. The following data is a result of laboratory testing conditions, and should be used as a guideline in determining the ultimate use for the material. However, actual service conditions may vary greatly. Therefore, each material should be tested under these specific conditions.

A		Ammonium Sulfate	E	C		E	
Acetaldehyde	U	Ammonium Sulfide	E	Cadmium	-	Ethers	U
Acetamide	-	Ammonium Thiocyanate	E	Calcium Bisulfite	E	Ethyl Acetate	U
Acetate Solvents – Crude	U	Aniline	U	Calcium Carbonate	E	Ethyl Alcohol	E
Acetate Solvents – Pure	U	Aniline Chlorohydrate	U	Calcium Chlorate	E	Ethyl Chloride	U
Acetic Acid 0-20%	E	Aniline Hydrochloride	U	Calcium Chloride	E	Ethyl Ether	U
Acetic Acid 20-30%	E	Anthraquinone	E	Calcium Hydroxide	E	Ethylene Bromide	U
Acetic Acid 30-60%	E	Anthraquinonesulfonic Acid	E	Calcium Hypochlorite	E	Ethylene Chlorohydrin	U
Acetic Acid 80%	G	Antimony Trichloride	E	Carbolic	-	Ethylene Dichloride	U
Acetic Acid – Glacial	G	Aqua Regia	E	Carbonic Acid	E	Ethylene Glycol	E
Acetic Acid Vapors	E	Arsenic Acid	E	Carbon Bisulfide	U	F	
Acetic Anhydride	U	Arsenius	-	Carbon Dioxide	E	Fatty Acids	E
Acetone	U	Arylsulfonic Acid	E	Carbon Monoxide	S	Ferric Chloride	E
Acetyl Chloride	E	B		Carbon Tetrachloride	S	Ferric Nitrate	E
Acetylene	E	Baking Oven Gases	-	Castor Oil	E	Ferric Sulfate	E
Adipic Acid	E	Barium Carbonate	E	Caustic Potash	E	Ferrous Chloride	E
Alcohol, Allyl	E	Barium Hydroxide	E	Caustic Soda	E	Ferrous Sulfate	E
Alcohol, Amyl	E	Barium Hydroxide	E	Chloracetic Acid	E	Flourine Gas	E
Alcohol, Butyl	E	Barium Sulfate	E	Chloral Hydrate	E	Fluoroboric Acid	E
Alcohol, Ethyl	E	Barium Sulfide	-	Chloric Acid 20%	E	Fluorosilicic Acid	E
Alcohol, Methyl	E	Beer	E	Chlorine Gas	G	Formaldehyde	E
Alcohol, Propyl	E	Beet	E	Chlorine Water	E	Formic Acid	E
Alkaform Anesthesia	-	Benzol	U	Chloribenzene	U	Freon-12	E
Allyl Chloride	U	Benzaldehyde	U	Chloroform	U	Fructose	E
Alum	E	Benzene Sulfonic Acid 10%	E	Chlorosulfonic Acid	E	Furfural	U
Alum, Chrome	U	Benzoic	E	Chrome Alum	E	G	
Alum, Potassium	E	Bismuth Carbonate	E	Chromic Acid 50%	E	Gallic Acid	E
Aluminum Chloride	E	Black Liquor	E	Cider	-	Gas Coke Oven	E
Aluminum Fluoride	E	Bleach	E	Citric	E	Gas Natural	E
Aluminum Hydroxide	E	Borax	E	Copper Carbonate	-	Gas Manufactured	U
Aluminum Oxychloride	E	Boric Acid	E	Copper Chloride	E	Gasoline	E
Aluminum – Molten	-	Boron Trifluoride	E	Copper Fluoride	E	Glauber's Salt	-
Aluminum Nitrate	E	Bordeaux Mixture	-	Copper Nitrate	E	Gold Cyanide Electroplate	-
Aluminum Sulfate	E	Breeder Pellets	E	Copper Sulfate	E	Glucose	E
Aluminum Sulfuric Acid		Brine	E	Cottonseed Oil	E	Glycerine	E
40-70 95%	U	Bromic Acid	E	Cresol	U	Glycol	E
Ammonia, Gas	E	Bromine Liquid	E	Cresote	-	Glycolic Acid	E
Ammonia, Liquid	S	Bromine Water	U	Cresylic Acid 50%	E	Green Liquor	E
Ammonia, Aqua 10%	E	Butadiene	E	Croton Aldehyde	U		
Ammonium Acetate	-	Butane	E	Crude Oil	E	H	
Ammonium Bifluoride	E	Butanol Primary	E	Cyclohexanol	U	Heptaine	E
Ammonium Bromide	-	Butanol Secondary	E	D		Hexane	E
Ammonium Carbonate	E	Butyl Acetate	G	Demineralized Water	E	Hexanol Tertiary	E
Ammonium Chloride	E	Butyl Alcohol	E	Dextrin	E	Hydrobromic Acid 20%	E
Ammonium Chloride 25%	E	Butylene	E	Dextrose	E	Hydrochloric Acid 35%	E
Ammonium Hydroxide 28%	E	Butyl Phensl	E	Diazo Salts	E	Hydrochloric Acid 50%	E
Ammonium Metaphosphate	E	Butyne Diol	E	Diglycolic Acid	E	Hydrocyanic Acid 10%	E
Ammonium Nitrate	E	Butyric Acid	G	Dimethylamine	U	Hydrogen	E
Ammonium Monophosphate	-			Diocylphthalate	U	Hydrogen Cyanide	E
Ammonium Oxalate	-			Disodium Phosphate	E	Hydrogen Peroxide 50%	E
Ammonium Persulphate	E					Hydrogen Phosphide	E
Ammonium Phosphate	E						

E=Excellent G=Good S=Satisfactory U=Unsatisfactory

Hydrogen Sulfide Dry+	E	Monoethanolamine	-	Plating Solutions, Silver	E	Sodium Borate	-
Hydrogen Sulfide Aq. Sol.	E			Plating Solutions, Tin	-	Sodium Bisulfite	E
Hydroquinone	E	N		Plating Solutions, Zinc	-	Sodium Bromide	E
Hydroxylamine Sulfate	E	Naptha	E	Potassium Aluminum Sulfate	-	Sodium Carbonate	E
Hypochlorous Acid	E	Naphthalene	U	Potassium Bicarbonate	E	Sodium Chlorate	E
		Nickel Chloride	E	Potassium Bichromate	E	Sodium Chloride	E
I		Nickel Nitrate	E	Potassium Borate	E	Sodium Chlorite	-
Iodine	U	Nickele Sulfate	E	Potassium Bromote	E	Sodium Citrate	-
		Nicotine	E	Potassium Bromide	E	Sodium Cyanide	E
J		Nicotinic Acid	E	Potassium Carbonate	E	Sodium Dichromate	E
Jet Fuel JP-4	E	Nitric Acid 10%	E	Potassium Chlorate Aqueous	-	Sodium Ferricyanide	E
Jet Fuel JP-5	E	Nitric Acid 70%	E	Potassium Chloride	E	Sodium Ferrocyanide	E
		Nitric Acid 100%	U	Potassium Chromate	-	Sodium Fluoride	E
K		Nitrobenzene	U	Potassium Cyanide	E	Sodium Hydroxide 15%	E
Kerosene	E	Nitrous Acid 10%	-	Potassium Dichromate	E	Sodium Hydroxide 30%	E
Ketones	U	Nitrous Oxide	E	Potassium Ferricyanide	E	Sodium Hydroxide 70%	E
Kraft Liquor	E			Potassium Ferrocyanide	E	Sodium Hypochlorite	E
		O		Potassium Fluoride	E	Sodium Iodide	-
L		Ocenol	E	Potassium Hydate	-	Sodium Lactate	-
Lactic Acid 25%	E	Oil and Fats	E	Potassium Hydroxide	E	Sodium Nitrate	E
Lactic plus Salt	-	Oleic Acid	E	Potassium Hypochlorite	-	Sodium Nitriete	E
Lard Oil	E	Oleum	U	Potassium Iodide	-	Sodium Peroxide	-
Lauric Acid	E	Oxalic Acid	E	Potassium Nitrate	E	Sodium Phosphate	-
Lauryl Chloride	E	Oxygen	E	Potassium Oxalate	-	Sodium Sulfate	E
Lead Molten	-	Ozone	G	Potassium Perboarate	E	Sodium Sulfide	E
Lead Acetate	E			Potassium Perchlorate	E	Sodium Sulfite	E
Lemon Oil	-	P		Potassium Permanganate		Sodium Thiosulfate 20% plus	
Linseed Oil	E	Palmitic Acid 10%	E	10%	E	Acetic Acid 20%	-
Linoleic Acid	E	Palmitic Acid 70%	E	Potassium Persulfate	E	Sodium Thiosulfate plus 4%	
Liqueurs	E	Peracetic Acid 40%	E	Potassium Sulfate	E	Potassium Meta Bisulfate	-
Lubricating Oil	-	Perchloric Acid 10%	E	Propane	E	Soda Ash	-
Lysol	-	Perchloric Acid 70%	U	Propargyl Alcohol	E	Sour Crude Oil	E
		Phenol	E	Propyl Alcohol	E	Speculum Plating Solution	-
M		Phenylhydrazine	U	Propylene Dichloride	U	Stannic Chloride	E
Magnesium Carbonate	E	Phenylhydrazine		Pyrogallic	-	Stannous Chloride	E
Magnesium Chloride	E	Hydrochloride	E	Pryroligneus	-	Stearic Acid	E
Magnesium Hydroxide	E	Phosgene Liquid	U			Stoddard's Solvent	E
Magnesium Nitrate	E	Phosgene Gas	E	R		Succinic	-
Magnesium Sulfate	E	Phosphoric Acid 10%	E	Rayon Coagulating Bath	E	Sulfated Detergents	-
Maleic Acid	E	Phosphoric Acid 25%, 50%	E			Sulfur	E
Malic Acid	E	Phosphoric Acid 50%, 85%	E	S		Sulfur Chloride	-
Meats	-	Phosphorus Yellow	E	Salenic Acid Aqueous	E	Sulfur Dioxide Dry	E
Mercuric Chloride	E	Phosphorus Pentoxide	E	Salicic Acid	E	Sulfur Dioxide Wet	G
Mercuric Cyanide	E	Phophorus Trichloride	U	Salicylaldehyde	-	Sulfur Oxychloride	-
Mercurous Nitrate	E	Photographic Solutions	E	Sea Water	E	Sulfuric Acid 10%	E
Mercury	E	Picric Acid	U	Sauerkraut Brine	-	Sulfuric Acid 30%	E
Methane	E	Plating Solutions	E	Selenic Acid	E	Sulfuric Acid 60%	E
Methyl Alcohol	E	Plating Solutions, Brass	-	Silicic Acid	E	Sulfuric Acid 70%	E
Methyl Chloride	U	Plating Solutions, Cadmium	-	Silver Bromide	-	Sulfuric Acid 80%	E
Methyl Sulfate	E	Plating Solutions, Chrome		Silver Nitrate	E	Sulfuric Acid 90%	E
Methyl Sulfuric Acid	E	25%	-	Silver Cyanide Electroplating		Sulfuric Acid 95%	E
Methylene Chloride	U	Plating Solutions, Chrome		Solution	-	Sulfuric Acid 103%	E
Milk	E	40%	-	Soaps	E	Sulfurous Acid	E
Mineral Oil	E	Plating Solutions, Copper	-	Soap Solutions	E	Sulfur Trioxide	E
Mine Water	-	Plating Solutions, Gold	-	Sodium Acetate	E	Steam and Air	-
Mixed Acids	E	Plating Solutions, Iron	-	Sodium Benzoate	E	Steam and CO2 and Air	-
Molasses	E	Plating Solutions, Lead	-	Sodium Bicarbonate	E	Ste SO2, CO2 and Air	-
Molybdc	-	Plating Solutions, Nickel	-	Sodium Bichromate	-	Syrup	-
		Plating Solutions, Rhodium	-	Sodium Bisulfate	E		

E=Excellent G=Good S=Satisfactory U=Unsatisfactory

T		Tributyl Phosphate	U	Vegetable Juices	-		
Tall Oil	E	Trichloroacetic Acid	-	Vinyl Acetate	U	X	
Tanic Acid	E	Trichloroethylene	U	Visco 202 Cruide Oil Additive	-	Xylene or Xylol	U
Tanning Liquors	E	Triethanolamine	E				
Tartaric Acid	E	Triethylamine	E	W		Z	
Tetraethyl Lead	E	Trimethylpropane	E	Water	E	Zinc Chloride	E
Tetrahydrofuran	U			Water Acid Mine	E	Zinc Chromate	E
Thionyl Chloride	U	U		Water Demineralized	E	Zinc Cyanide	E
Thread Cutting Oils	-	Urea	E	Water Distilled	E	Zinc Molten	-
Titanium Tetrachloride	E	Uric	E	Water Salt	E	Zinc Nitrate	E
Toluene, Toluol	U	Urine	E	Water Sewage	E	Zinc Sulfate	E
Toluene-Kerosene Mixture	-			Whiskey	E		
Tomato Juice	-	V		White Liquor	E		
Toxaphene-Xylene	-	Vegetable Oil	-	Wines	E		

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