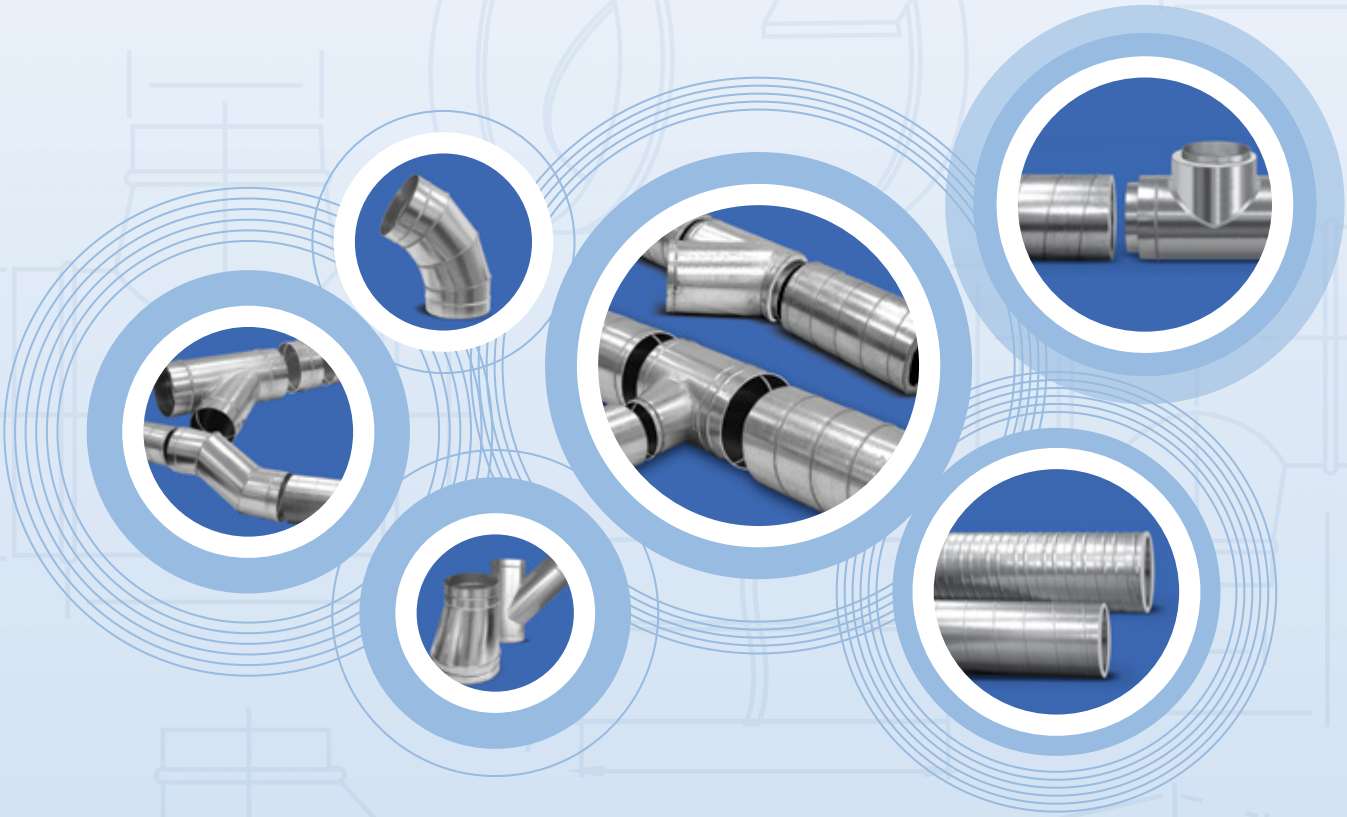
SHARQAWI

Air Distribution Systems Co. Factory

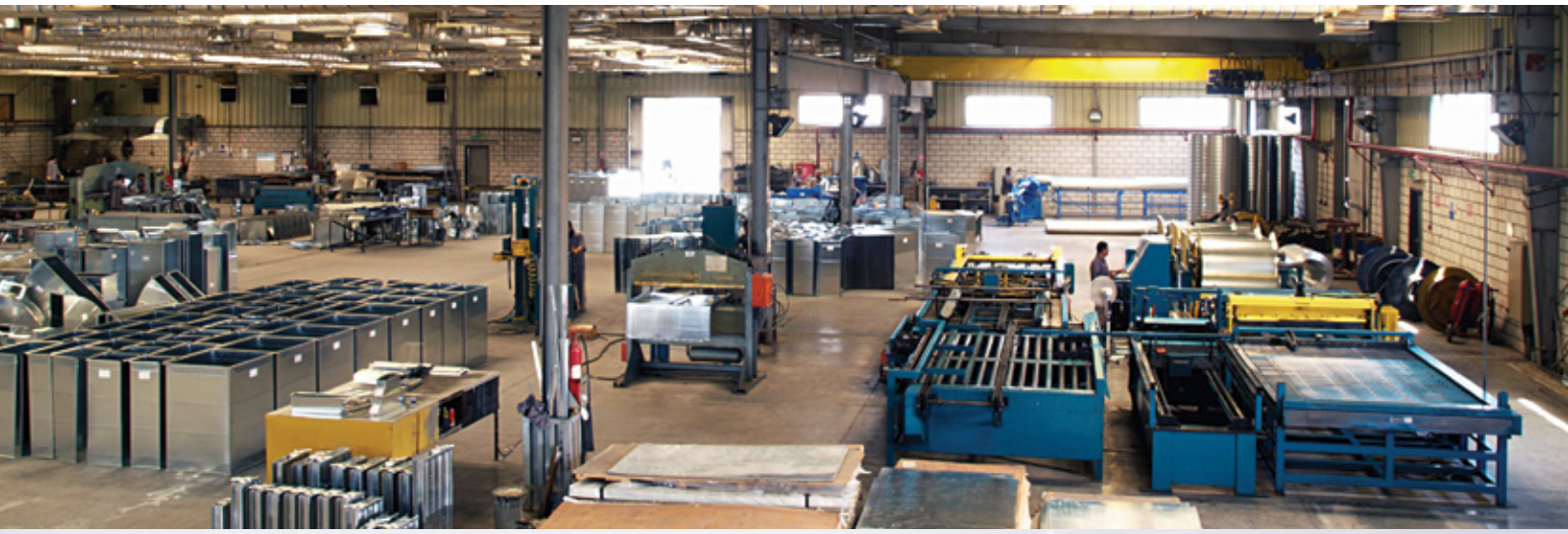
Delivering Excellence

ROUND DUCT WORKS (SINGLE & DOUBLE WALL)



• On Time Delivery • According to Standard
• Customization • Quality • Cooperation

Delivering Excellence



ABOUT US

Sharqawi Air Distribution Systems Co. Factory, has been in the market since 1995, as one leading manufacturer in the kingdom of Saudi Arabia in the field of fabrication of HVAC duct and its Accessories. Upon whose satisfaction we have been allowed to grow and prosper in this highly competitive marketplace.

As one of the leading HVAC ducts and its accessories manufacturers, our reason of 'being' is a combination of our vision, mission, and values.

Vision:
We aspire making Sharqawi the most trusted manufacturer of HVAC ducts and its accessories in the Kingdom of Saudi Arabia, region and the world.

Mission:
To aim for design perfection and expanding our market-share by enhancing our marketing, satisfying customer requirements, complying with the international quality standards and consistently sustaining our improvement program.

Values:
Our values reflect who we are and our reason for being.

Quality: We provide exquisite products that deliver exceptional values to our customer.

Integrity: We boost the highest integrity in all of our activities and operations.

Customer commitment: we develop positive relationships that make a beneficial influence on our client's business.

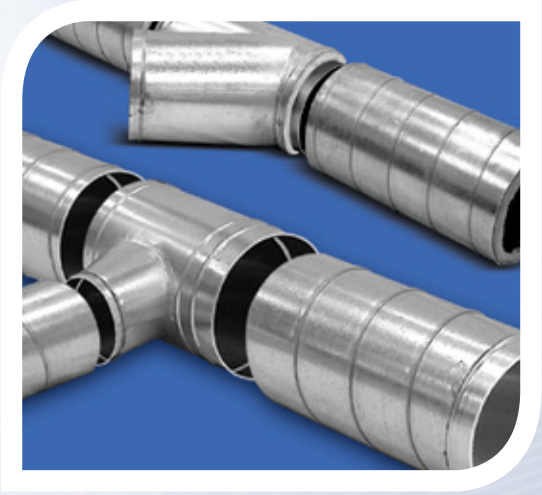
Teamwork: We work together across boundaries to meet the expectations of our customers and support the company to win.

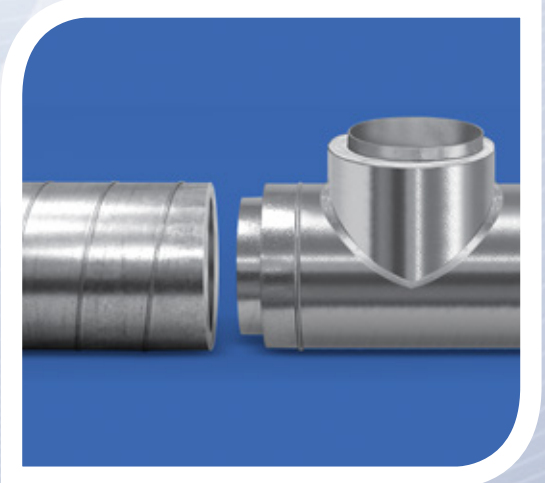
A Will To Win: We exhibit a strong will to win in the marketplace and every aspect of our business.

Respect for people: We value our people, encourage their development and reword their performance.

Good residents: We are good residents in the communities in which we live and work.

Personal Accountability: We are personally accountable for delivering on our commitment.





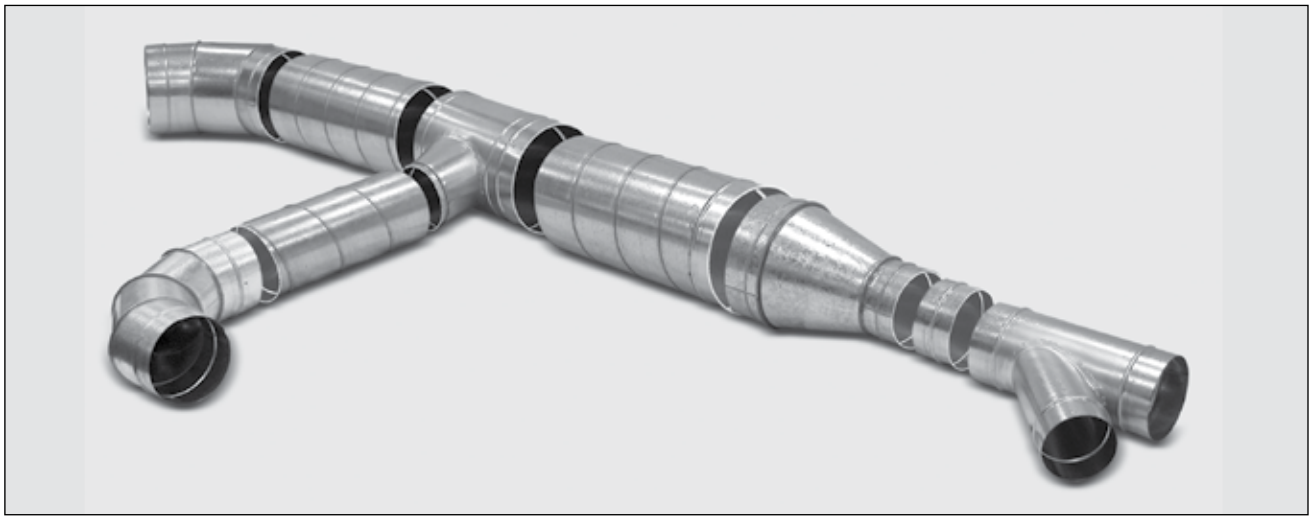
SHARQAWI VENT SYSTEM

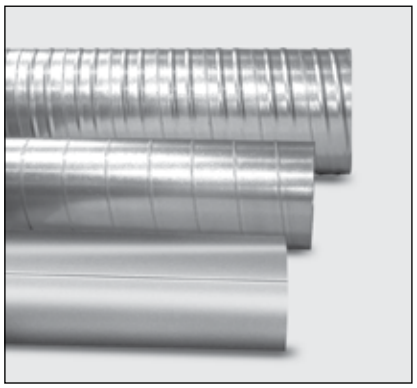
Spiral duct combines the economies of light gauge with spiral lockseam construction that assures maximum strength rigidity. As a results of its superior structural strength, the ductwork requires fewer joints and hangers.

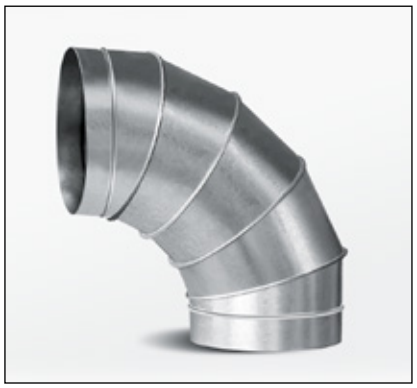
Spiral duct has gained wide acceptance for all types of low, medium or high pressure, above and below ground distribution systems, such as ventilation, air conditioning, industrial exhaust and double wall duct for sound and thermal insulation.

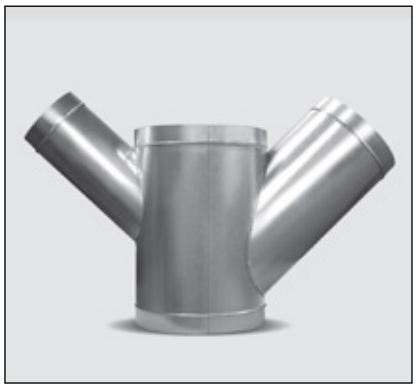
Benefits of the Sharqawi Vent System

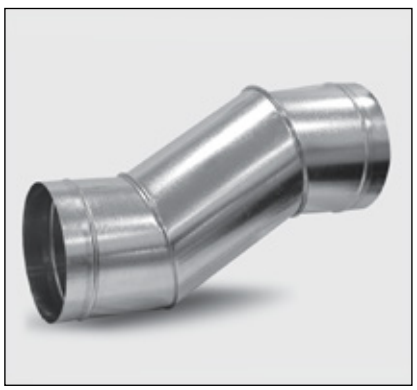
- Spiral duct and fittings are ideal for use in architecturally exposed applications, and can be painted to match or complement its surroundings.
- Spiral ductwork requires fewer joints and hangers.
- Less transverse joints, therefore leakage is reduced.
- Significantly lower installation costs.
- Less square meters to insulate.
- Pressure drop through a round system is significantly less than a volumetrically equal rectangular system.
- Internal duct cleaning is easier and cheaper to apply.
- Fast and easy installation.











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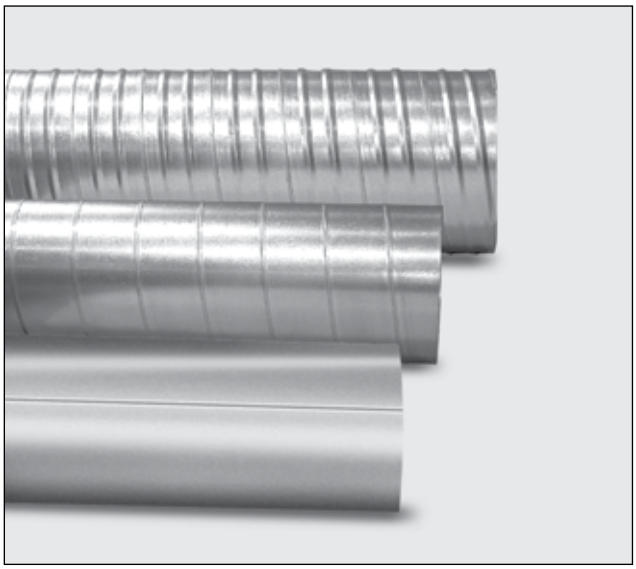
Ducts
SP/SPC/SPL

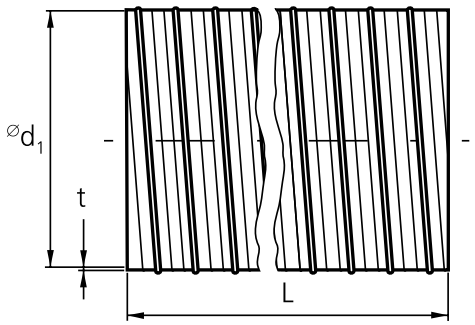


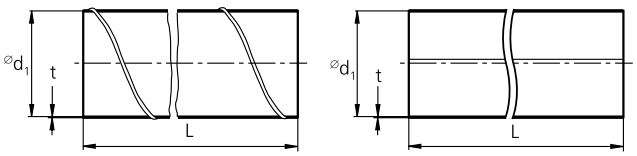
Description

Spiral lock seam duct is constructed with an interlocking helical seam that runs the length of the duct. The Lockseam is formed on the outside of the duct, providing a smooth interior that results in minimal friction loss. This seam increases the duct's rigidity. Spiral lockseam duct can be fabricated in lengths of 6 meter or greater. Longitudinal seam duct (SPL) is available for applications that require heavy gauges or large diameters. The longitudinal seam of the duct is solid welded.

Types: SP, SPC (corrugation), SPL
Material: Galvanized, Stainless steel , Aluminum

Dimensions



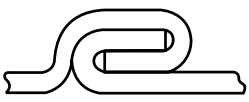


With corrugation

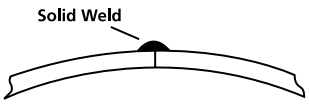
⌀d nom mm	Circumference πd m	πd²/4 m²
80	0.251	0.005
100	0.314	0.008
125	0.393	0.012
140	0.44	0.015
150	0.471	0.018
160	0.503	0.02
180	0.565	0.025
200	0.628	0.031
224	0.704	0.039
250	0.785	0.049
280	0.88	0.062
300	0.942	0.071
315	0.99	0.078
355	1.115	0.099
400	1.257	0.126
450	1.414	0.159
500	1.571	0.196
560	1.759	0.246
600	1.885	0.283
630	1.979	0.312
650	2.042	0.332
700	2.199	0.385
750	2.356	0.442
800	2.513	0.503
850	2.67	0.567
900	2.827	0.636
950	2.985	0.709
1000	3.142	0.785
1050	3.299	0.866
1100	3.456	0.95
1150	3.613	1.039
1200	3.77	1.131
1250	3.927	1.227
1300	4.084	1.327
1350	4.241	1.431
1400	4.398	1.539
1450	4.555	1.651
1500	4.712	1.767
1550	4.869	1.887
1600	5.027	2.011
1700	5.341	2.27
1800	5.655	2.545
1900	5.969	2.835
2000	6.283	3.142
2100	6.597	3.464
2200	6.912	3.801
2300	7.226	4.155
2400	7.54	4.524
2500	7.854	4.909

Technical data

Spiral Lock Seam



Butt-Welded Seam



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Ducts
SP/SPC/SPL

Conversion Chart: Rectangular to Equivalent Round (for Equal Friction and Capacity)

b \ a	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	900	1000	1200	1400	1600	1700	1800	1900	2000
100	109																							
125	122																							
150	133	164																						
175	143	177																						
200	152	189	219																					
225	161	200	232																					
250	169	210	244	273																				
275	179	220	256	287																				
300	183	229	266	299	328																			
350	195	245	286	322	354	383																		
400	207	260	305	343	378	409	437																	
450	217	274	321	363	400	433	464	492																
500	227	287	337	381	420	455	488	518	547															
550	236	299	352	398	439	477	511	543	573	601														
600	245	310	365	414	457	496	533	567	598	628	656													
650	253	321	378	429	474	515	553	589	622	653	683	711												
700	261	331	391	443	490	533	573	610	644	677	708	737	765											
750	268	341	402	457	506	550	592	630	666	700	732	763	792	820										
800	275	350	414	470	520	567	609	649	687	722	755	787	818	847	875									
900	289	367	435	494	548	597	643	686	726	763	799	833	866	897	927	984								
1000	301	384	454	517	574	626	674	719	762	802	840	876	911	944	976	1037	1093							
1100	313	399	473	538	598	652	703	751	795	838	878	916	953	988	1022	1086	1146							
1200	324	413	490	558	620	677	731	780	827	872	914	954	993	1030	1066	1133	1196	1312						
1300	334	426	506	577	642	701	757	808	857	904	948	990	1031	1069	1107	1177	1244	1365						
1400	344	439	522	595	662	724	781	835	886	934	980	1024	1066	1107	1146	1220	1289	1416	1530					
1500	353	452	536	612	681	745	805	860	913	963	1011	1057	1100	1143	1183	1260	1332	1464	1584					
1600	362	463	551	629	700	766	827	885	939	991	1041	1088	1133	1177	1219	1298	1373	1511	1635	1749				
1700	371	475	564	644	718	785	849	908	964	1018	1069	1118	1164	1209	1253	1335	1413	1555	1684	1803	1858			
1800	379	485	577	660	735	804	869	930	988	1043	1096	1146	1195	1241	1286	1371	1451	1598	1732	1854	1912	1968		
1900	387	496	590	674	751	823	889	952	1012	1068	1122	1174	1224	1271	1318	1405	1488	1640	1778	1904	1964	2021	2077	
2000	395	506	602	688	767	840	908	973	1034	1092	1147	1200	1252	1301	1348	1438	1523	1680	1822	1952	2014	2073	2131	2186
2100	402	516	614	702	782	857	927	993	1055	1115	1172	1226	1279	1329	1378	1470	1558	1719	1865	1999	2063	2124	2183	2240
2200	410	525	625	715	797	874	945	1013	1076	1137	1195	1251	1305	1356	1406	1501	1591	1756	1906	2044	2110	2173	2233	2292
2300	417	534	636	728	812	890	963	1031	1097	1159	1218	1275	1330	1383	1434	1532	1623	1793	1947	2088	2155	2220	2283	2343
2400	424	543	647	740	826	905	980	1050	1116	1180	1241	1299	1355	1409	1461	1561	1655	1828	1986	2131	2200	2266	2330	2393
2500	430	552	658	753	840	920	996	1068	1136	1200	1262	1322	1379	1434	1488	1589	1685	1862	2024	2173	2243	2311	2377	2441
2600	437	560	668	764	853	935	1012	1085	1154	1220	1283	1344	1402	1459	1513	1617	1715	1896	2061	2213	2285	2355	2422	2487
2700	443	569	678	776	866	950	1028	1102	1173	1240	1304	1366	1425	1483	1538	1644	1744	1929	2097	2253	2327	2398	2466	2533
2800	450	577	688	787	879	964	1043	1119	1190	1259	1324	1387	1447	1506	1562	1670	1772	1961	2133	2292	2367	2439	2510	2578
2900	456	585	697	798	891	977	1058	1135	1208	1277	1344	1408	1469	1526	1586	1696	1800	1992	2167	2329	2406	2480	2552	2621

$D_e = 1.30\ [(ab)^{0.625}/(a+b)^{0.250}]$ where,
a = length of one side of rectangular duct (mm).
b = length of adjacent side of rectangular duct (mm).
D_e = circular equivalent of rectangular duct for equal friction and capacity (mm).

Example: convert rectangular duct 500x500 to equivalent round.
a = 300, b = 750; from above table D_e = 506

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Construction Standards
Spiral Duct, Round Fittings

Table 1-1 Spiral Duct and fitting Gauges for positive Pressure

Duct Diameter in mm (inches)					Positive Pressure +500 Pa, (2"W.G.)		Positive Pressure +1000 Pa, (4"W.G.)		Positive Pressure +2500 Pa, (10"W.G.)	
mm	inches	____	inches	mm	Spiral seam gauge	Longitudinal seam gauge fittings	Spiral seam gauge	Longitudinal seam gauge fittings	Spiral seam gauge	Longitudinal seam gauge fittings
100	(4)	thru	(8)	200	26	26	26	26	26	24
201	(9)	thru	(14)	355	26	26	26	26	26	24
356	(15)	thru	(26)	660	26	24	24	22	24	22
661	(27)	thru	(36)	910	24	22	22	20	22	20
911	(37)	thru	(50)	1270	22	20	20	20	20	20
1271	(51)	thru	(60)	1520	20	18	18	18	18	18
1521	(61)	thru	(84)	2130	18	16	18	16	18	16
2131	(85)	thru	(90)	2286	18	16	18	16	18	16
2287	(91)	thru	(96)	2400	18	16	18	16	18	16

- Above schedule meet the requirements of SMACNA HVAC Duct Construction Stds. Metal and Flexible. Third Edition 2005
- Corrugated ducts are not reflected in above table.
- Longitudinal seam ducts are continuously welded and supplied in 1 meter long.

Table 1-2 Spiral Duct and fitting Gauges for Negative Pressure

Duct Diameter in mm (inches)					Negative Pressure +500 Pa, (2"W.G.)		Negative Pressure +1000 Pa, (4"W.G.)		Negative Pressure +2500 Pa, (10"W.G.)	
mm	inches	____	inches	mm	Spiral seam gauge	Longitudinal seam gauge fittings	Spiral seam gauge	Longitudinal seam gauge fittings	Spiral seam gauge	Longitudinal seam gauge fittings
100	(4)	thru	(8)	200	26	26	26	26	26	24
201	(12)	thru	(12)	305	26	26	26	24	24	22
306	(16)	thru	(16)	400	26	24	24	22	22	20
401	(20)	thru	(20)	508	24	22	22	20	22	18
509	(24)	thru	(24)	610	22	20	22	18	20	16
611	(34)	thru	(34)	863	20	18	20	16	18	16*
864	(34)	thru	(48)	1219	18	18*	18	16	18*	16*
1220	(49)	thru	(60)	1520	18	16	18	16	18	18
1521	(61)	thru	(84)	2130	18	16	18	16	18	16
2131	(85)	thru	(90)	2286	18	16	18	16	18	16
2287	(91)	thru	(96)	2400	18	16	18	16	18	16

- Above schedule meet the requirements of SMACNA HVAC Duct Construction Stds. Metal and Flexible. Third Edition 2005
- Corrugated ducts are not reflected in above table.
- Longitudinal seam ducts are continuously welded and supplied in 1 meter long.

* Require reinforcement angles, for more details consult Sharqawi Air Distribution Systems Factory

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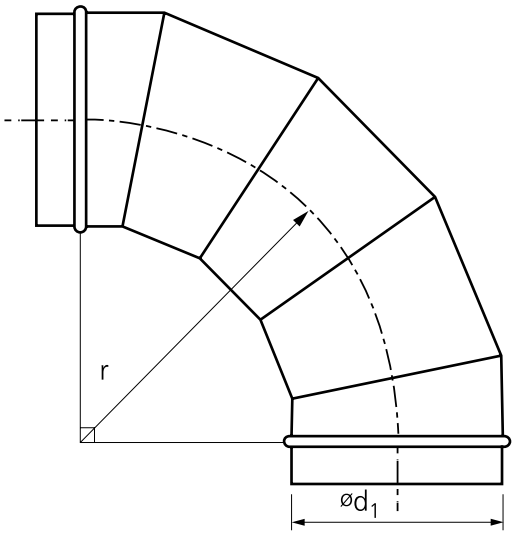
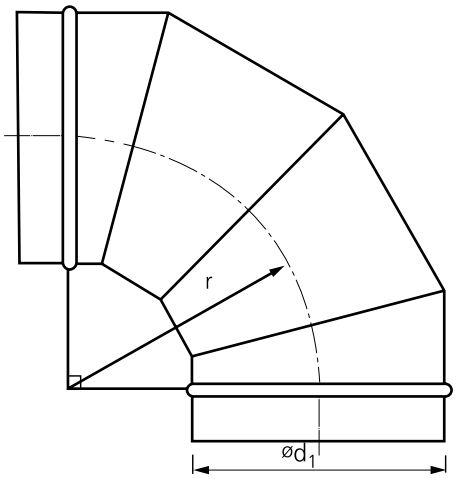
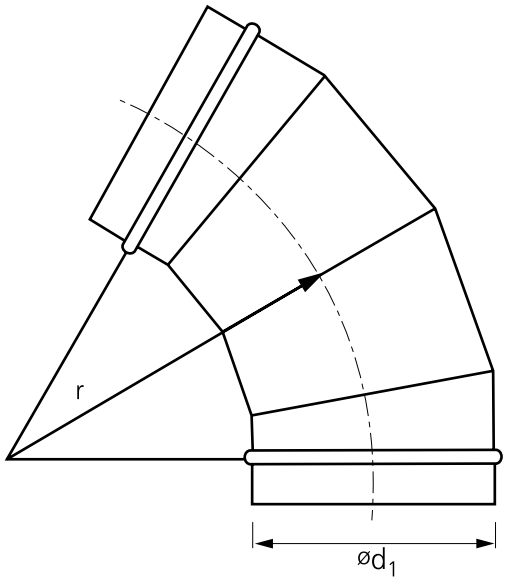
Elbow **ELL 90°**



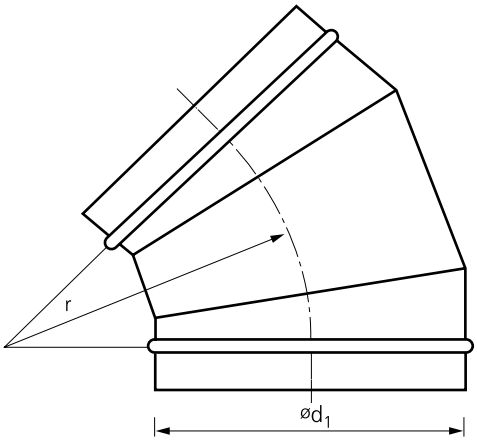
Elbow **EL 90°**



Elbow **EL 60°**



Elbow **EL 45°**



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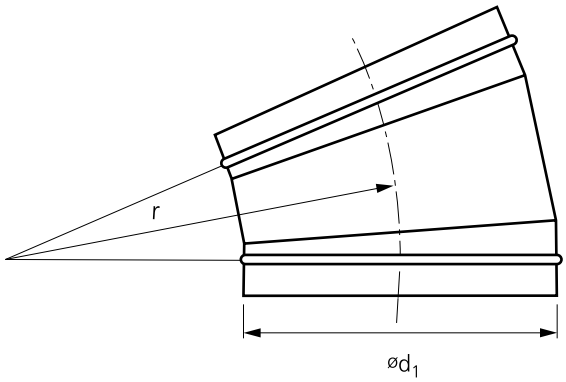
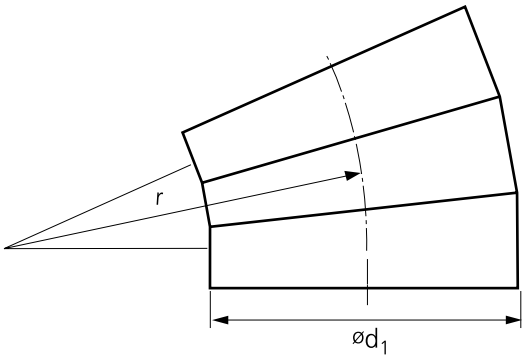
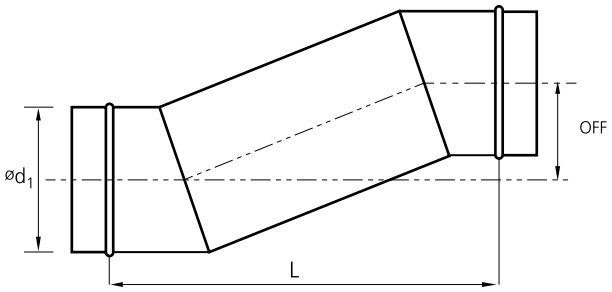
Elbow **EL 30°**



Elbow **EL 15°**

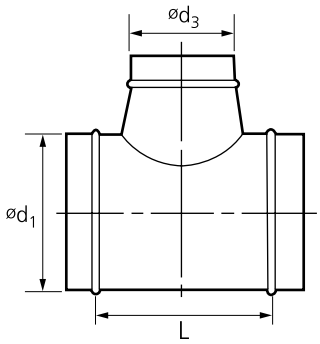


Offset **OFF**

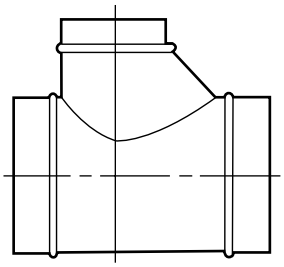


T-pieces **TSLC/TSLF**

TSLC



TSLF



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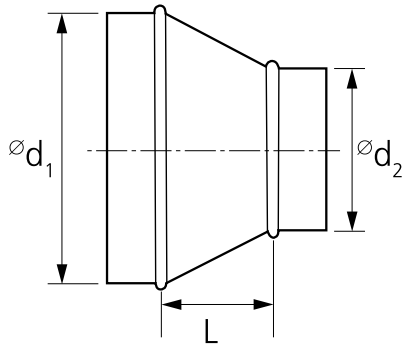
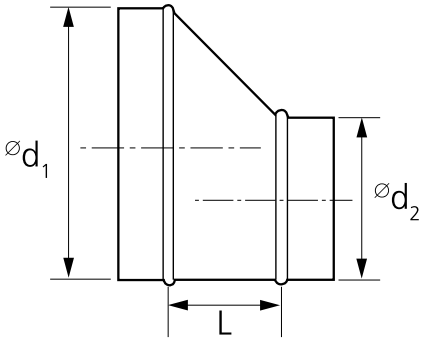
Reducers **REC/REEC**

REC

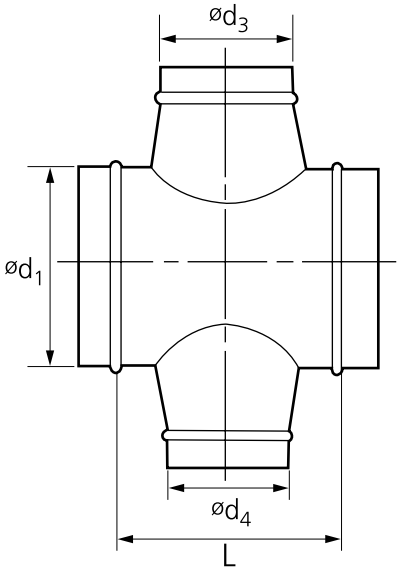


REEC

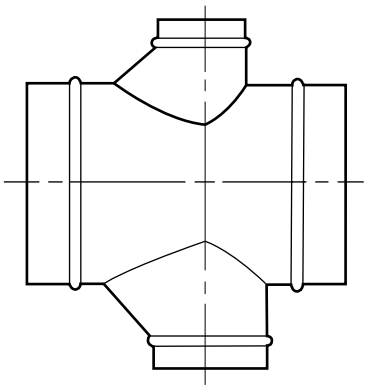


Cross -pieces **XSLC/XSLF**

XSLC



XSLF



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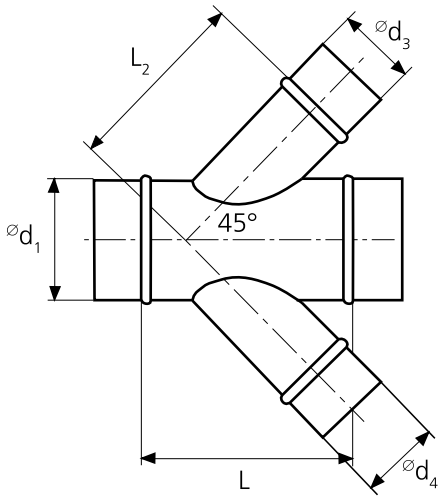
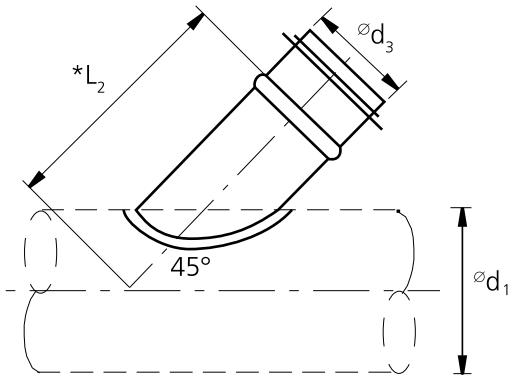
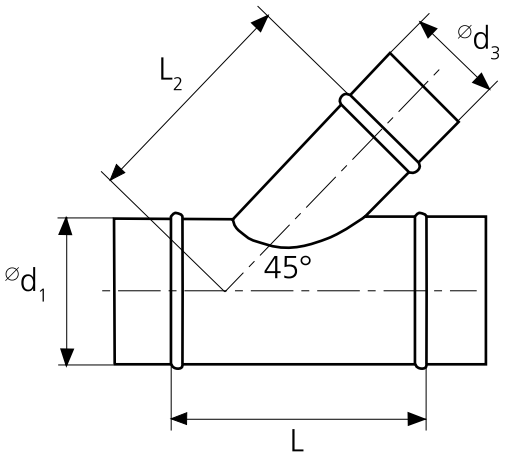
Lateral cross **XSL 45°**



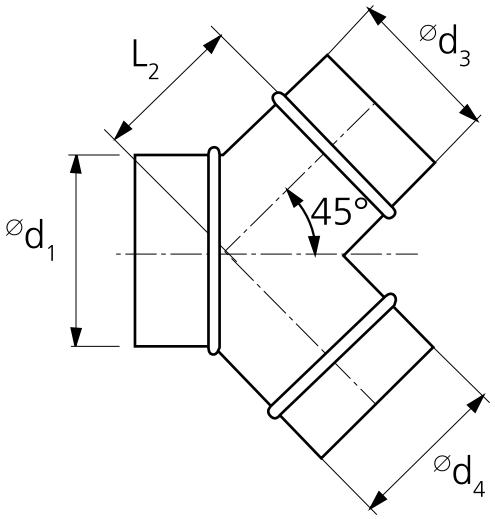
Collar saddles **CSDL 45°**



Straight Lateral **YSL 45°**



Twin bends **TWSL 45°**



All sizes are available on request

Also available with EPDM rubber

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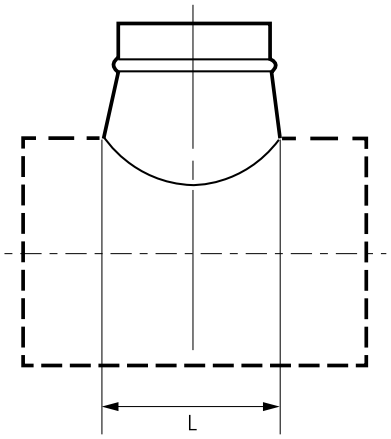
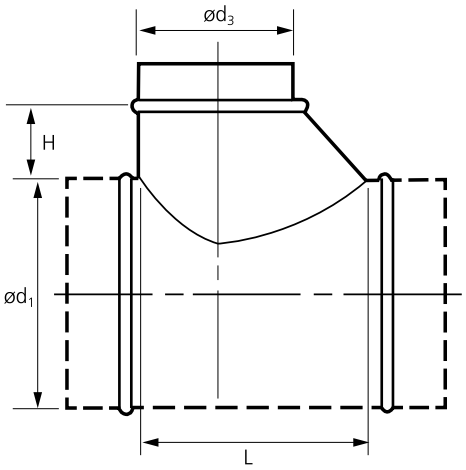
Straight Lateral **YSL 45°**

Saddle pieces **SLC/SLF**

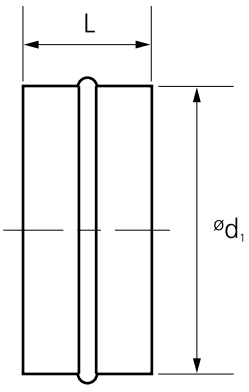
SLC



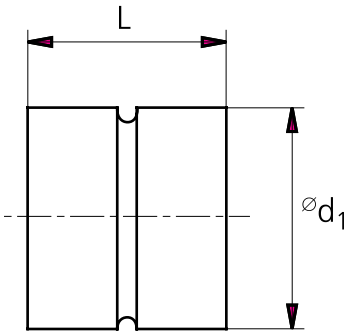
SLF



Male Coupling **MCP**



Female Coupling **FCP**



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SINGLE-WALL, SLIP-JOINT

Connection instructions

Duct to Duct

1 Apply sealant on one end of coupling, one inch from the stop bead.

2 Slide coupling into one section of duct until stop bead is flush against raw edge of duct.

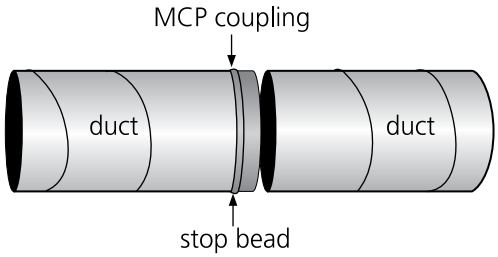
3 Slide second section of duct over the other end of the coupling, stopping one inch short of the stop bead.

4 Apply sealant to the inch of exposed coupling. (Do not apply sealant prior to this step or to the inside of duct.)

5 After the sealant is applied, push second duct over the coupling until it's flush against the stop bead. The only visible part of the coupling now is the stop bead.

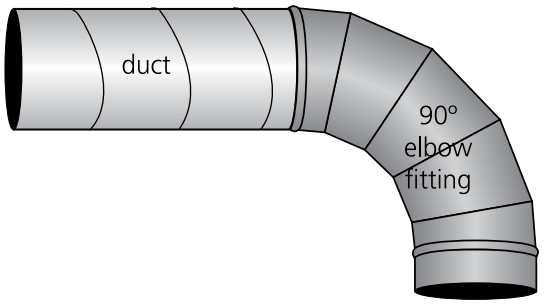
6 Secure the connection by inserting sheet metal screws (or pop rivets) through each duct, into the coupling, 1/2 inch from the stop bead.

7 Dress exposed stop bead as required.



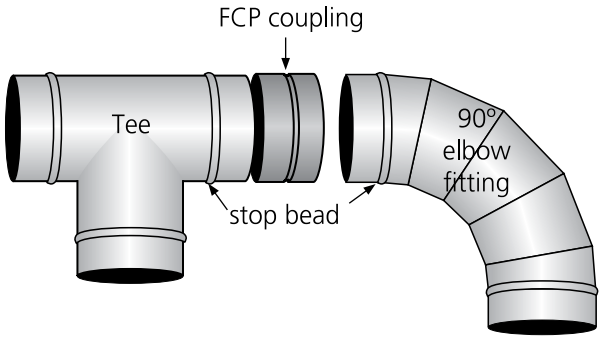
Fitting to Duct

1. Slide fitting into duct, stopping one inch short of the stop bead.
2. Apply sealant to the one inch of exposed fitting collar. (Do not apply Sealant prior to this stage or to the inside of the duct.)
3. After the sealant is applied, push duct and fitting together until duct is flush against the stop bead. The only visible part of the fitting collar now is the stop bead.
4. Secure the connection by inserting sheet metal screws (or pop rivets) through the duct, into the coupling,1/2 inch from the stop bead.
5. Dress exposed stop bead as required.



Fitting to Fitting

1. Slide the coupling over the collar of the fitting. stopping 1 inch short of the stop bead. (Note that the coupling has no stop bead.)
2. Apply sealant to the inch of exposed fitting. (Do not apply sealant prior to this stage or to the inside of the pipe.)
3. After the sealant is applied, push fitting and coupling together until the coupling is flush against the stop bead.
4. Slide second fitting into coupling, stopping 1 inch short of stop bead.
5. Apply sealant to the inch of exposed fitting.
6. Push second fitting and coupling together until coupling is flush against stop bead.
7. Secure the connection by inserting sheet metal screws (or pop rivets) through the connector, into the fitting,1/2-inch from the stop bead.
8. Dress exposed stop bead as required.



Sharqawi products are manufactured to limit friction, leakage and noise. By producing fitting and couplings an 1/8 of an inch smaller than the duct. a secure fit is ensured when properly installed. *If sealing is not required,delete all sealant steps.*

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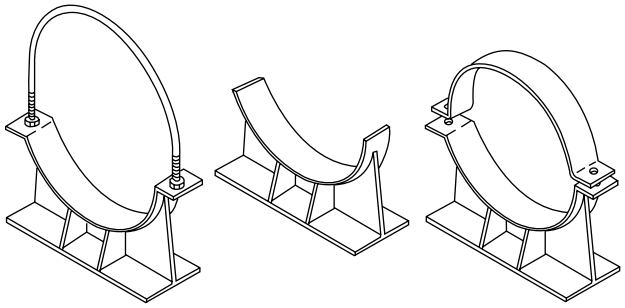
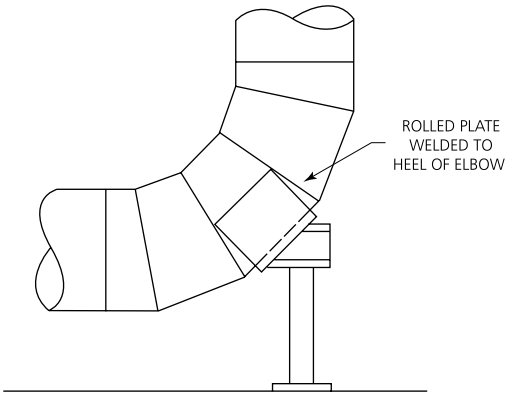
SUPPORT SYSTEM FOR DUCTS

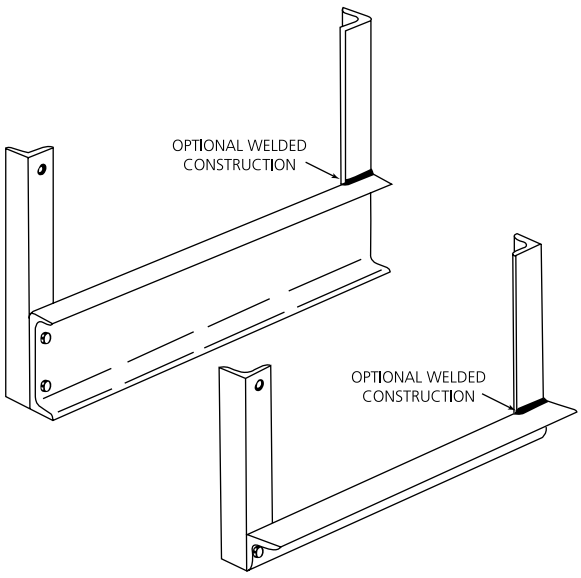
Duct Saddles



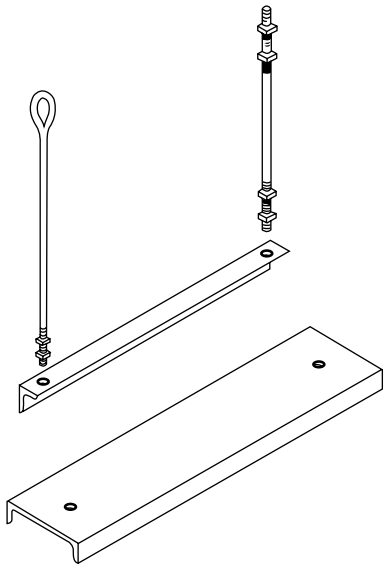
Supporting Round Duct



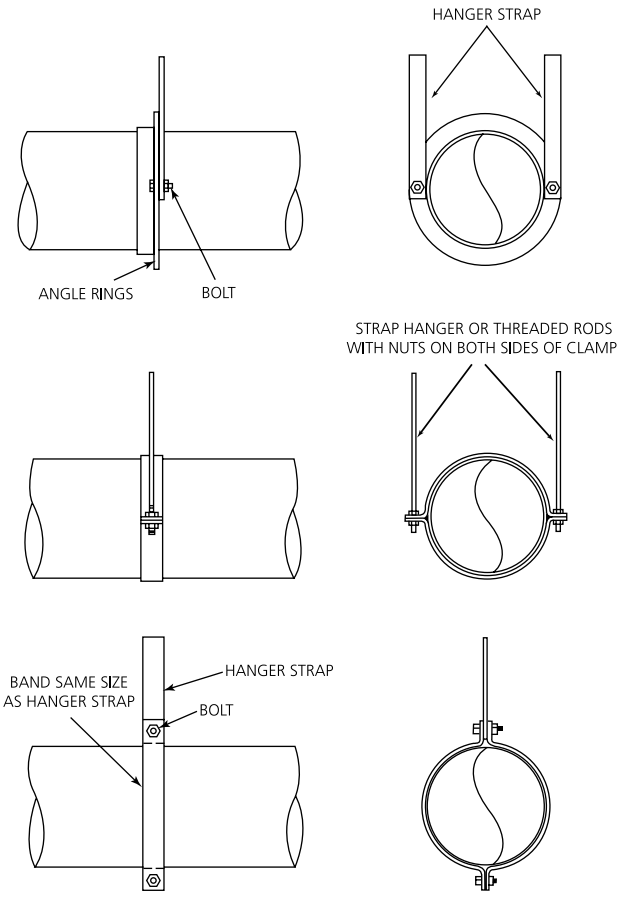
Trapeze Type Supports



Trapeze Type Supports



Hanging Round Duct



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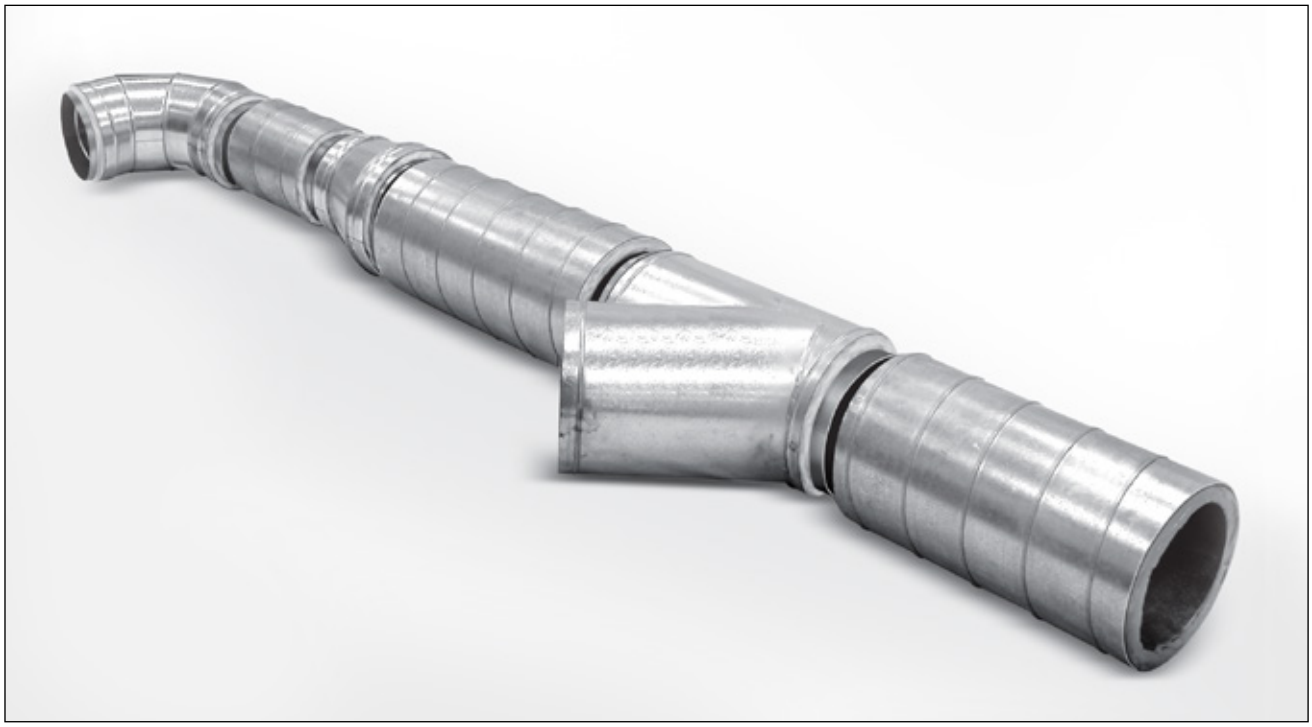
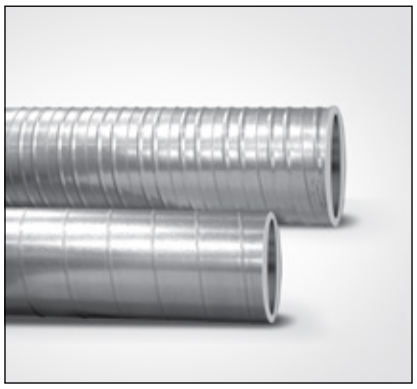
SHARQAWI DOUBLE WALL

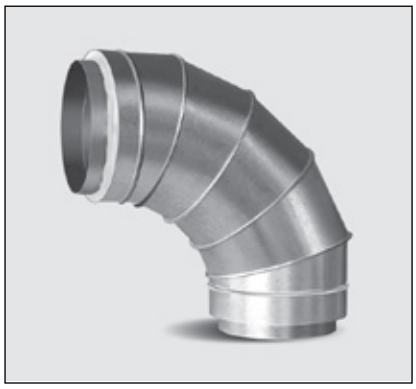
Sharqawi has a complete line of double wall spiral ducts and fittings, each piece fabricated with an inner metal liner surrounded by insulation and covered by a solid metal outer shell.

The inner liner is available in either perforated or Solid metal.

All Double wall ductwork is available with 25mm or 50mm fiberglass Insulation.







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Benefits of the Sharqawi Double Wall Ducts

- **Fan noise reduction**

  Our double wall duct and fittings provide exceptional control of fan noise, often eliminating the need for additional duct silencers.

- **Reduced air flow- generated noise**

  The insulation is located outside the duct system's air passage, where it can absorb sound without interfering with the air flow.

- **Flanking - path control**

  When a duct system passes through noisy environments such as mechanical equipment rooms and production areas. its walls can pickup flanking - path noise and convey it to other areas served by the duct system. The internal insulation of our double wall duct begins absorbing external noise as soon as it enters duct system, effectively preventing the duct system from becoming a speaking tube.

- **Damage Protection**

  Our sheet metal outer shell protects the insulation from damage during construction and maintenance. In outdoor applications, it protects the insulation from damage caused by sun, wind, rain, oxidation and other environmental factors.

- **Fire Safety**

  The Sheet metal walls of our double-wall duct and fittings are noncombustible and not prone to penetration by fire.

- **Appearance:**

  Double-wall duct and fittings are ideal for use in architecturally exposed applications. The sheet metal outer shell has a uniform, finished appearance, and it can be painted to match or complement its surroundings.

- **Control of Heat Loss and Heat Gain**

  The insulation in double-wall duct and fittings acts as a thermal barrier, increasing a duct system's effectiveness by helping to maintain the temperature of heated or cooled air being ducted through the system.

- **Integral Vapor Barrier**

  The sheet metal outer shell of our double-wall duct and fittings serves as an integral and permanent vapor barrier to prevent moisture from condensing in the insulation.

Construction Standards

Double Wall Spiral Duct and Fitting Gauges

Duct Diameter	Spiral Duct		Fittings	
mm	inner	outer	inner	outer
100 - 315	26	26	24	24
350 - 650	26	26	24	24
700 - 900	24	24	22	22
950 - 1250	22	22	20	20
1300 - 1500	22	20	20	18
1501 - 2130	20	20	18	18
2131 - 2286	20	20	18	18
2287 - 2400	18	18	16	16

- Duct and fittings are fabricated from G90 galvanized steel sheet meeting ASTM A-653 standards (formally A,527).
- Outer shell of spiral duct 350 dia. and larger can be corrugated for more strength and rigidity, both inner and outer duct will be of spiral lockseam construction.
- Fiber glass conductivity factor (K) = 0.032 w/m.C° at 10°
- For more details on construction schedule consult Sharqawi Air Distribution Systems Factory.

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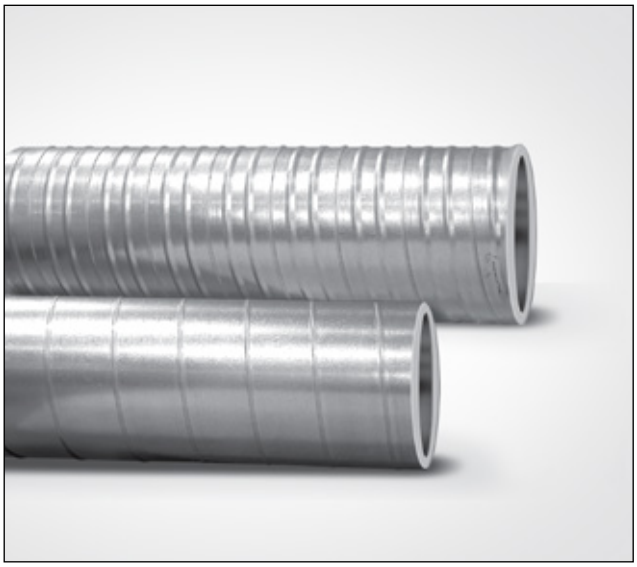
Ducts
SP/SPC/SPL

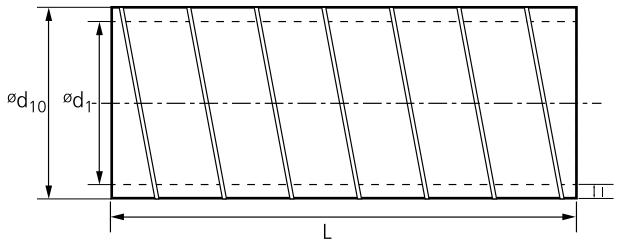


Description

SPI - Thermal double wall duct
- Outer shell: solid galvanized steel.
- Inner shell: solid galvanized steel

SPA - Acoustical double wall duct
- Outer shell: solid galvanized steel.
- Inner shell: perforated galvanized steel
- Inner shell diameter mm d1
- Outer shell diameter mm d10 = d1+2l
- Insulation 25 mm or 50 mm
- Insulation density: 24 kg/m3 as standard

Dimensions



All sizes are available on request

Also available with EPDM rubber

∅d nom mm	Circumference πd m	πd²/4 m²
80	0.251	0.005
100	0.314	0.008
125	0.393	0.012
140	0.44	0.015
150	0.471	0.018
160	0.503	0.02
180	0.565	0.025
200	0.628	0.031
224	0.704	0.039
250	0.785	0.049
280	0.88	0.062
300	0.942	0.071
315	0.99	0.078
355	1.115	0.099
400	1.257	0.126
450	1.414	0.159
500	1.571	0.196
560	1.759	0.246
600	1.885	0.283
630	1.979	0.312
650	2.042	0.332
700	2.199	0.385
750	2.356	0.442
800	2.513	0.503
850	2.67	0.567
900	2.827	0.636
950	2.985	0.709
1000	3.142	0.785
1050	3.299	0.866
1100	3.456	0.95
1150	3.613	1.039
1200	3.77	1.131
1250	3.927	1.227
1300	4.084	1.327
1350	4.241	1.431
1400	4.398	1.539
1450	4.555	1.651
1500	4.712	1.767
1550	4.869	1.887
1600	5.027	2.011
1700	5.341	2.27
1800	5.655	2.545
1900	5.969	2.835
2000	6.283	3.142
2100	6.597	3.464
2200	6.912	3.801
2300	7.226	4.155
2400	7.54	4.524
2500	7.854	4.909

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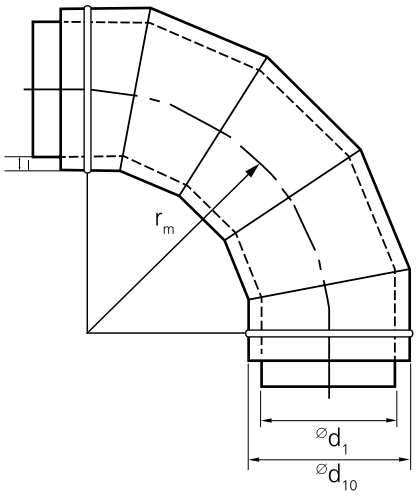
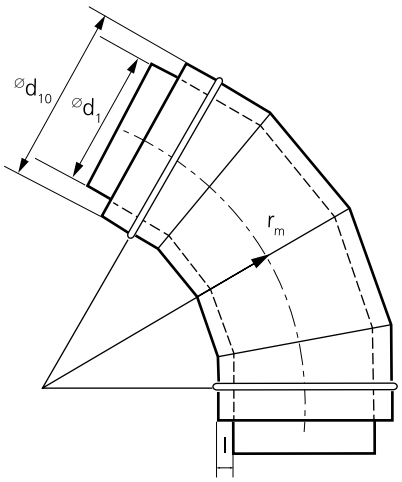
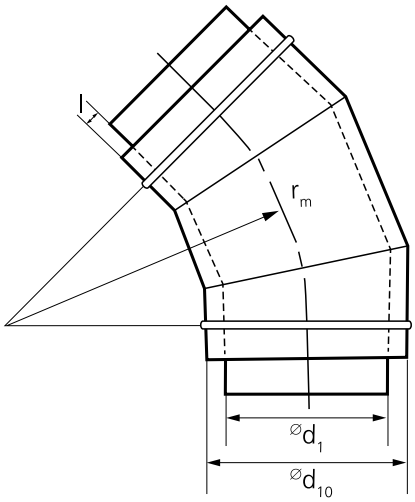
Elbow **ELTL90°/ELTA90°**



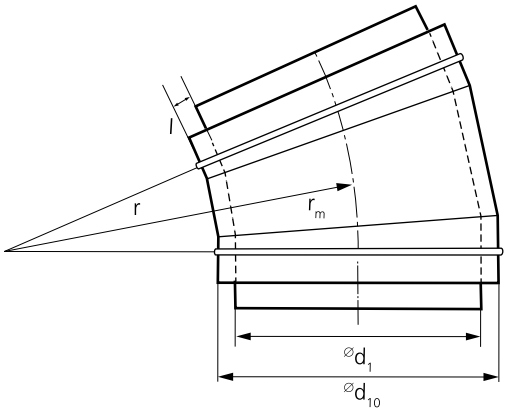
Elbow **ELT60°/ELA60°**



Elbow **ELT45°/ELA45°**



Elbow **ELT30°/ELA30°**



All sizes are available on request

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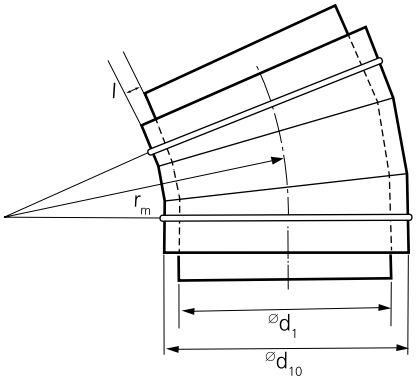
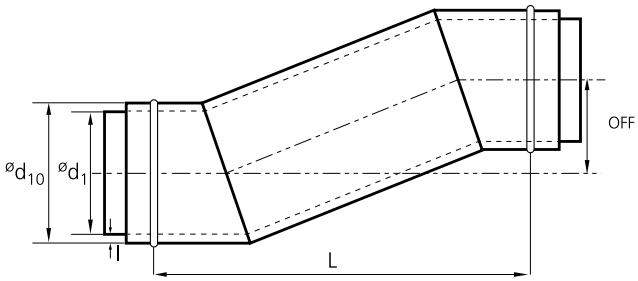
Elbow **ELT15°/ELA15°**

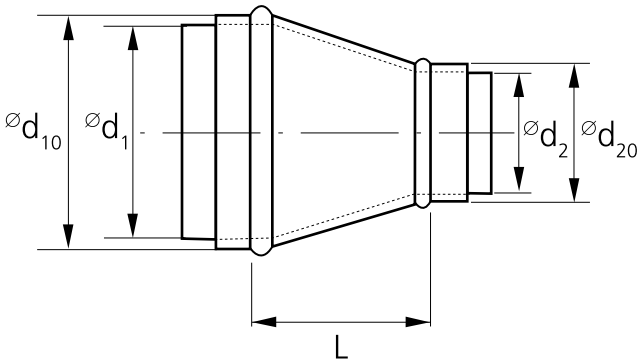


Offest **OFFT/OFFA**

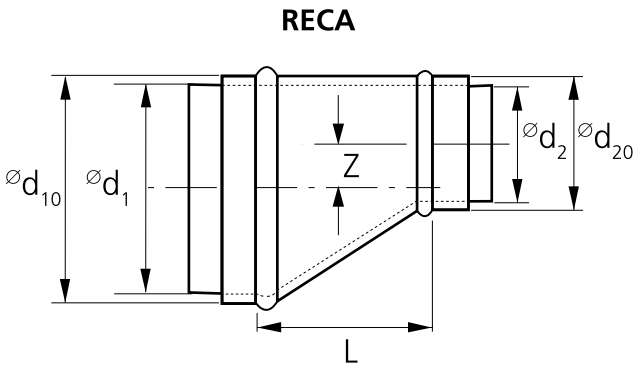


Reducer **RECT/RECA/REFT/REFA**

RECT



RECA



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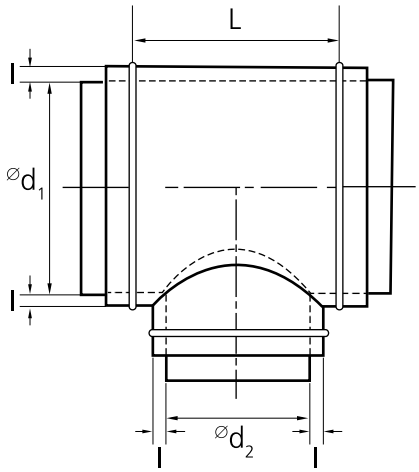
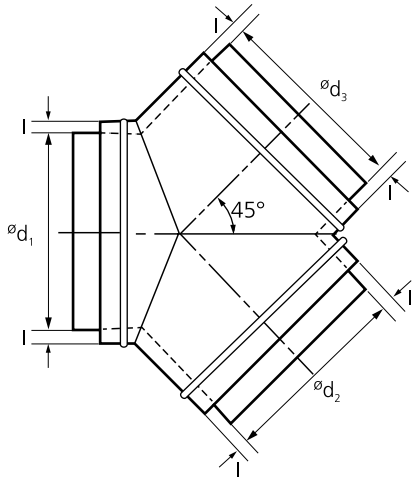
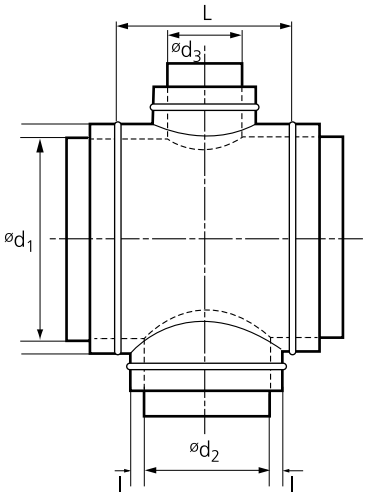
Straight Tee **TSCT/TSCA**



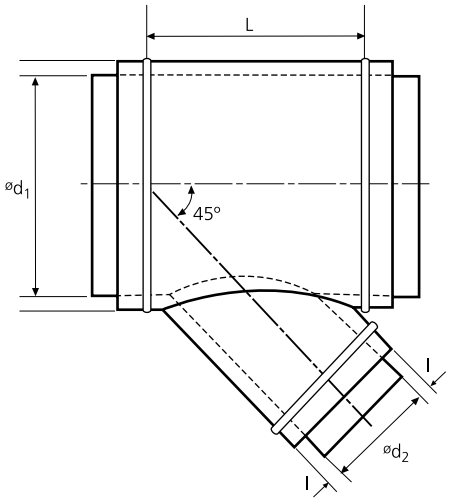
Twin bend **TWLT45°/TWLA45°**



Straight Cross **XSCT/XSCA**



Straight Lateral **YSLT45°/YSLA45°**



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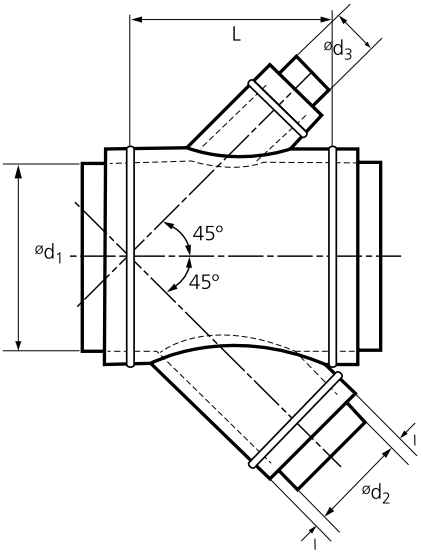
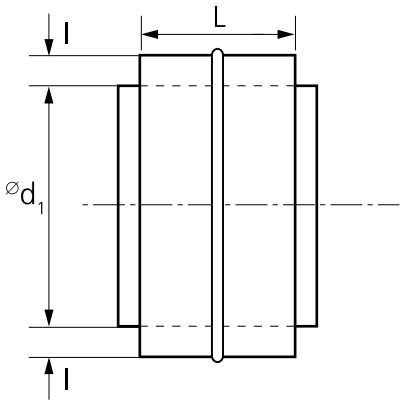
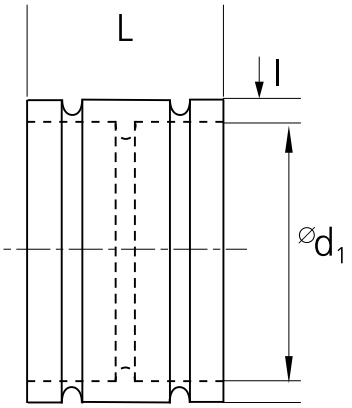
Lateral Cross **XSLT45°/XSLA45°**



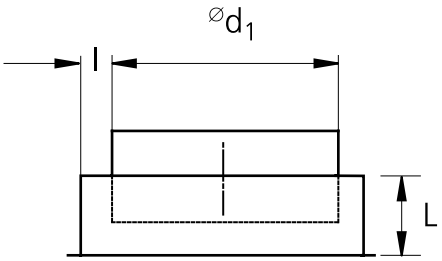
Coupling **MCPT/MCPA**



Coupling **FCPT/FCPA**



End Cap **ECT/ECA**



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Assembly Instructions

Slip-Joint Connections

Duct-to-Duct joints

A duct-to-duct slip joint requires a fitting size, double -wall coupling, as shown in **Figure 1.** The collars of the coupling's inner liner project beyond the collars of the outer wall. This makes it possible to insert the coupling's inner liner into the duct's inner liner before starting to connect the outer shells. A stop bead runs around the middle of the coupling's outer shells to center the coupling in the connection.

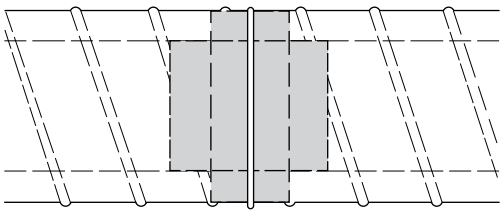
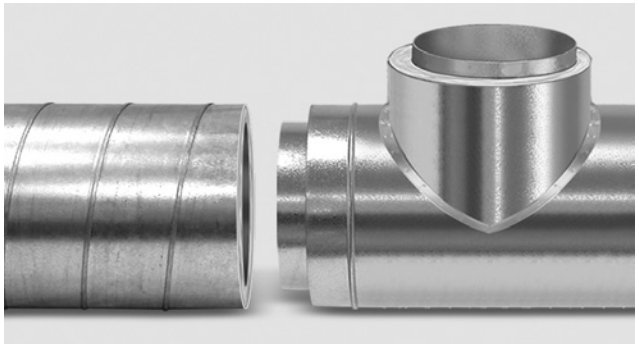


Figure 1. Double wall duct-to-duct slip joint

Duct-to-fitting joints

Double-wall fittings are sized for slip-joint connection directly to double-wall duct. They are fabricated so that the inner liner collars project beyond the outer shell collars, as shown in **Figure 2.** This facilities assembly because the inner liner collar of the fitting can be inserted in to the inner liner of the duct before starting to connect the outer shell. The outer shell collars of fittings are provided with stop beads.



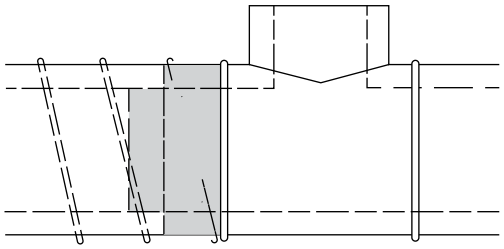
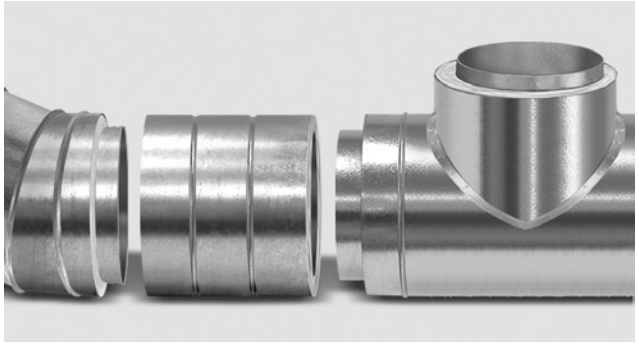


Figure 2. Double wall duct-to-fitting slip joint

fitting-to-fitting joints

Two double-wall fittings can be joined using a short piece of double-wall duct cut in the field or using a double-wall fitting coupling, as shown in **Figure 3.** This joint can be assembled by the same method as a duct-to-fitting connection.



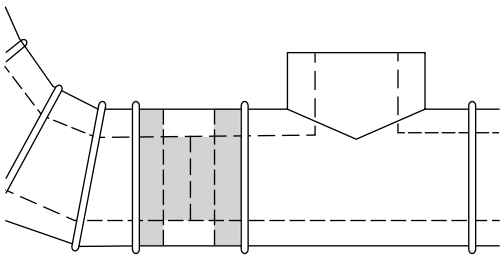


Figure 3. Double wall fitting-to-fitting slip joint

If an installation requires closer fitting-to-fitting connection than can be made with a coupling, a fitting can be furnished with one of its ends duct size (the inner liner at that end does not project beyond the outer wall). This special fitting can be connected directly to a standard fitting by the same procedure used to connect duct-to-fitting slip joints.

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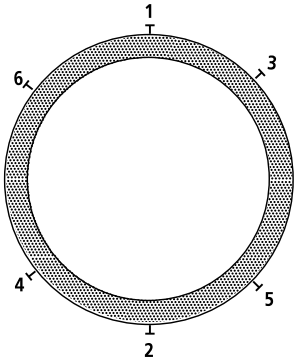
Assembly Instructions

Slip-Joint Connection Procedure

1. Slip the inner collar of the fitting (or duct coupling) into the liner of the mating piece of double-wall duct (or fitting coupling). Duct sealant is not need on the inner liner.
2. Slip the outer collar of the fitting (or duct coupling) into the outer shell of the duct (or fitting coupling).
3. When the connection is fully started , push the mating pieces together, leaving approximately 1 inch of the collar exposed between the end of the duct (coupling) and the stop bead.
4. Apply duct sealant around the perimeter of this exposed section. Do not put sealant on anything before the connection is fully started. For instruction on estimating the amount of duct sealant required for a job,
5. Push the mating pieces completely together so that the stop bead and duct (or coupling) meet.
6. Mechanically secure the connection by installing sheet metal screws through the outer shell of the duct-size part of the connection,Placement of the fastening screws should be opposite from one another evenly spaced around the circumference, much like the procedure for tightening lug nuts on a tire (see diagram below). Start where the distance between the Duct and the fitting is largest. In the event of incorrect installation, holes caused by screws or pop rivets must be sealed before re-assembly.
7. For duct-to-duct of fitting-to-fitting connections, complete the second half of the connection by repeating steps 1 through 6.
8. Apply duct sealant to the outside of each joint and brush it around the perimeter of the joint in a band 1 to 1 1/2 inches wide, starting on the stop bead . Make sure all screw heads are completely covered. For a fitting-to-fitting connection, this must be done on both ends of the connection.
9. Allow at least 48 hours for sealant to cure before pressure testing for leaks.

⌀d mm	min.rivet diameter mm	number
100 - 125	3.2	2
160 - 250	3.2	3
315 - 630	3.2	4
700 - 1250	4.0	6
1400 - 1600	4.8	12



Flanged - Joint Connection Procedure

1. slip one end of a fitting-size, single-wall coupling in to the inner liner of one section of duct or one fitting that is to be mated . Duct sealant is not needed on the inner liner.
2. apply approved gasketing material to the mating surface of the duct or fitting in which the coupling has been inserted, as shown in Figure 4. If the mating surface is a fixed angle ring, cover the face inside of any bolt hole pattern. If the mating surface is a Van Stone connector or flanged fitting, cover the flanged collar face.
3. Slip the other end of the coupling into the inner liner of a second section of duct or fitting.
4. Push the matting surfaces together, making sure the bolt holes are aligned. If a round Van Stone connector is used, it is important to have the connecting pieces as close to proper alignment as possible when the two surfaces are pushed together.
5. Insert bolts, add washers as required, and start nuts loosely. as shown in Figure 5.
6. Tighten all nuts.

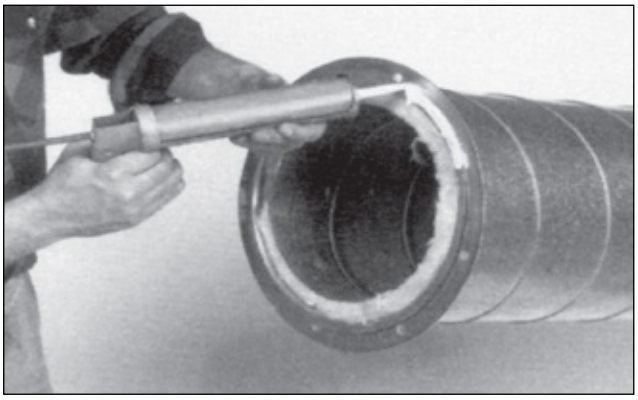


Figure 4. Applying gasketing material

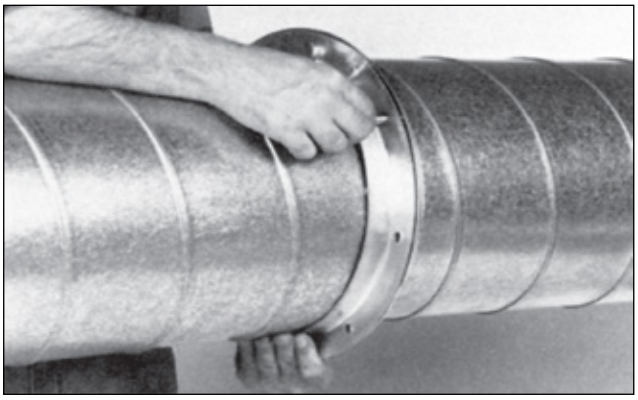


Figure 5. Bolting angle rings together

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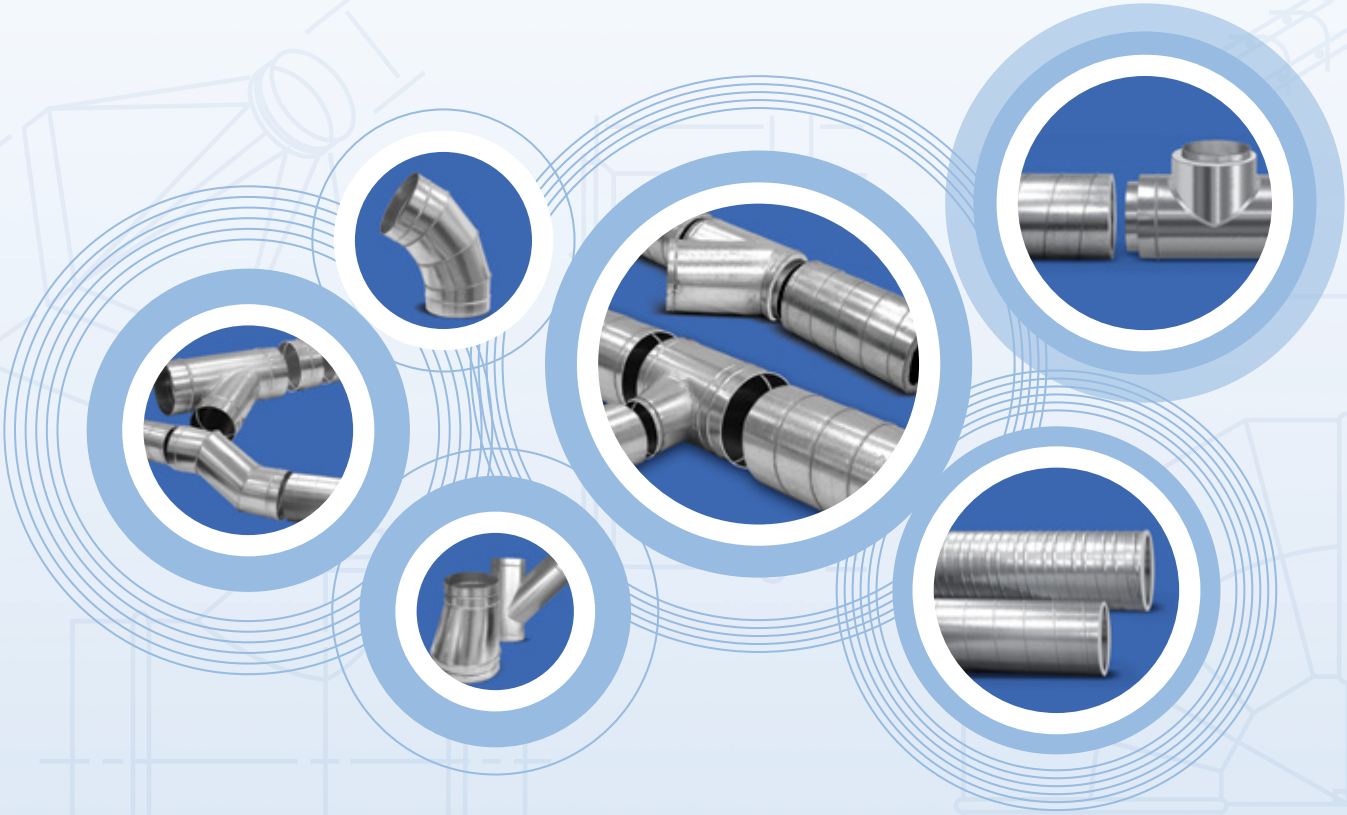

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