Models: **PDI, PDIA, FM-PDI, FM-PDIA – Flow Measuring Stations**

The Holyoake PDI series flow measuring stations and sensors are inexpensive, but remarkably accurate pressure differential measuring devices. Because they sense an average of velocity pressures across the duct, they are very tolerant of poor inlet duct configurations and lose little of their straight duct accuracy of better than ±5%. Each flow measuring station is furnished with a label showing the formula and factors for calculating velocity, from the pressure differential read on either a Magnahelic, or micromanometer. PDI sensors should be used in higher velocities such as those found in VAV terminal boxes. For normal duct velocities use the PDIA sensor.

Nominal Size	Internal Dia mm	Flow Factor 'K'		Guide Product Weights Approximate Weight in Kg Both Styles
		PDIA	PDI	
100	94	0.004	0.007	0.046
125	119	0.008	0.010	0.046
150	144	0.012	0.015	0.052
175	169	0.018	0.022	0.058
200	194	0.026	0.029	0.058
225	219	0.033	0.036	0.063
250	244	0.043	0.046	0.063
300	294	0.062	0.068	0.070
350	344	0.084	0.094	0.070
400	394	0.115	0.124	0.079

Notes

1. Flow Formula:

   $Q\ m^3/s = K\sqrt{\Delta p}$ Pa (Air at 1.184 kg/m^3, 21°C and 50% RH)

2. Both PD I and PDIA amplify the Δp signal. Amplification varies with size. For example, when compared with theoretical unamplified velocity pressure conversion, amplification factors are approximately:

SIZE	PDI	PDIA
150	1.94	2.95
300	1.67	1.98

These factors should not be used in calculation, but are shown to provide an indication of the amplifying effect of both types.

Model: **DM-PDIA – Sensor**

DM-PDIA assemblies are flange mounted sensors for insertion into rectangular duct. Measurement accuracy is much less definable due to the unknown velocity profile. However, where adequate straight duct (equivalent diameter x 10) exists, calculated velocity could be expected to lie within ±5% of actual, when using the formula:

$V = K_V\sqrt{\Delta p}$ Pa

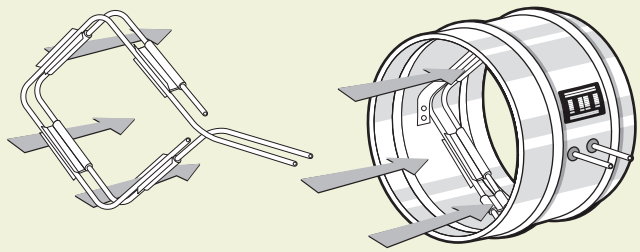
Where V = velocity m/s and K_V = tabulated velocity factor.

Dimensions

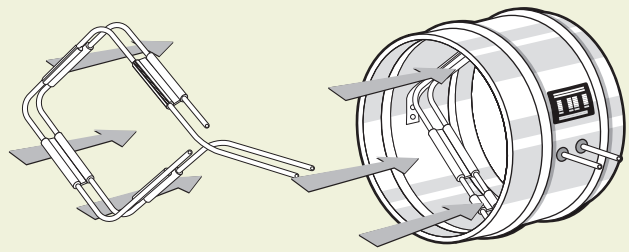
SIZE	A	B	C	Kv
150	150	100	120	0.8525
200	210	160	185	0.9475
250	250	200	230	0.9780

Note: For weight details contact your local Holyoake branch.

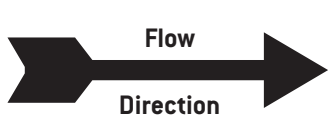
Flow Measuring Station



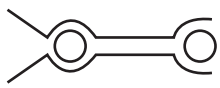
Model **PDIA Sensor** — Model **FM-PDIA Station**



Model **PDI Sensor** — Model **FM-PDI Station**

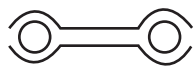


All PDIA Models



Measuring Positions

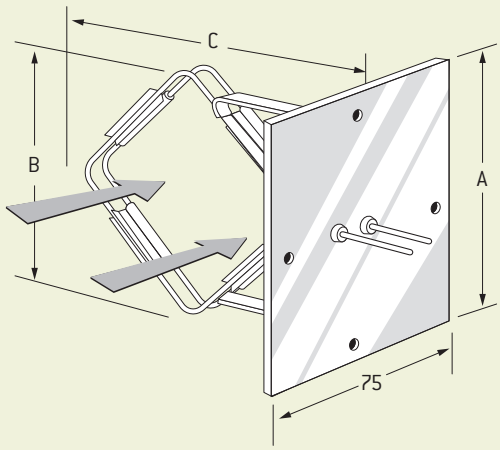
All PDI Models



Velocity or Static

Measuring Positions
(Dependant on Flow Direction)

Duct Mounted PDIA



ACCESSORIES – PDI Sensor Flow Rates

k fact	0.007	0.010	0.015	0.022	0.029	0.036	0.046	0.068	0.094	0.124	
nom DIA	100	125	150	175	200	225	250	300	350	400	
exact ID	94	119	144	169	194	219	244	294	344	394	
Pa	m³/s	m³/s	m³/s	m³/s	m³/s	m³/s	m³/s	m³/s	m³/s	m³/s	inch wg
5	0.016	0.022	0.034	0.049	0.065	0.080	0.103	0.152	0.210	0.277	0.02
10	0.022	0.032	0.047	0.070	0.092	0.114	0.145	0.215	0.297	0.392	0.04
15	0.027	0.039	0.058	0.085	0.112	0.139	0.178	0.263	0.364	0.480	0.06
20	0.031	0.045	0.067	0.098	0.130	0.161	0.206	0.304	0.420	0.555	0.08
25	0.035	0.050	0.075	0.110	0.145	0.180	0.230	0.340	0.470	0.620	0.10
30	0.038	0.055	0.082	0.120	0.159	0.197	0.252	0.372	0.515	0.679	0.12
35	0.041	0.059	0.089	0.130	0.172	0.213	0.272	0.402	0.556	0.734	0.14
40	0.044	0.063	0.095	0.139	0.183	0.228	0.291	0.430	0.595	0.784	0.16
45	0.047	0.067	0.101	0.148	0.195	0.241	0.309	0.456	0.631	0.832	0.18
50	0.049	0.071	0.106	0.156	0.205	0.255	0.325	0.481	0.665	0.877	0.20
55	0.052	0.074	0.111	0.163	0.215	0.267	0.341	0.504	0.697	0.920	0.22
60	0.054	0.077	0.116	0.170	0.225	0.279	0.356	0.527	0.728	0.960	0.24
65	0.056	0.081	0.121	0.177	0.234	0.290	0.371	0.548	0.758	1.000	0.26
70	0.059	0.084	0.125	0.184	0.243	0.301	0.385	0.569	0.786	1.037	0.28
75	0.061	0.087	0.130	0.191	0.251	0.312	0.398	0.589	0.814	1.074	0.30
80	0.063	0.089	0.134	0.197	0.259	0.322	0.411	0.608	0.841	1.109	0.32
85	0.065	0.092	0.138	0.203	0.267	0.332	0.424	0.627	0.867	1.143	0.34
90	0.066	0.095	0.142	0.209	0.275	0.342	0.436	0.645	0.892	1.176	0.36
95	0.068	0.097	0.146	0.214	0.283	0.351	0.448	0.663	0.916	1.209	0.38
100	0.070	0.100	0.150	0.220	0.290	0.360	0.460	0.680	0.940	1.240	0.40
105	0.072	0.102	0.154	0.225	0.297	0.369	0.471	0.697	0.963	1.271	0.42
110	0.073	0.105	0.157	0.231	0.304	0.378	0.482	0.713	0.986	1.301	0.44
115	0.075	0.107	0.161	0.236	0.311	0.386	0.493	0.729	1.008	1.330	0.46
120	0.077	0.110	0.164	0.241	0.318	0.394	0.504	0.745	1.030	1.358	0.48
125	0.078	0.112	0.168	0.246	0.324	0.402	0.514	0.760	1.051	1.386	0.50
130	0.080	0.114	0.171	0.251	0.331	0.410	0.524	0.775	1.072	1.414	0.52
135	0.081	0.116	0.174	0.256	0.337	0.418	0.534	0.790	1.092	1.441	0.54
140	0.083	0.118	0.177	0.260	0.343	0.426	0.544	0.805	1.112	1.467	0.56
145	0.084	0.120	0.181	0.265	0.349	0.433	0.554	0.819	1.132	1.493	0.58
150	0.086	0.122	0.184	0.269	0.355	0.441	0.563	0.833	1.151	1.519	0.60
155	0.087	0.124	0.187	0.274	0.361	0.448	0.573	0.847	1.170	1.544	0.62
160	0.089	0.126	0.190	0.278	0.367	0.455	0.582	0.860	1.189	1.568	0.64
165	0.090	0.128	0.193	0.283	0.373	0.462	0.591	0.873	1.207	1.593	0.67
170	0.091	0.130	0.196	0.287	0.378	0.469	0.600	0.887	1.226	1.617	0.69
175	0.093	0.132	0.198	0.291	0.384	0.476	0.609	0.900	1.244	1.640	0.71
180	0.094	0.134	0.201	0.295	0.389	0.483	0.617	0.912	1.261	1.664	0.73
185	0.095	0.136	0.204	0.299	0.394	0.490	0.626	0.925	1.279	1.687	0.75
190	0.096	0.138	0.207	0.303	0.400	0.496	0.634	0.937	1.296	1.709	0.77
195	0.098	0.140	0.209	0.307	0.405	0.503	0.642	0.950	1.313	1.732	0.79
200	0.099	0.141	0.212	0.311	0.410	0.509	0.651	0.962	1.329	1.754	0.81
205	0.100	0.143	0.215	0.315	0.415	0.515	0.659	0.974	1.346	1.775	0.83
210	0.101	0.145	0.217	0.319	0.420	0.522	0.667	0.985	1.362	1.797	0.85
215	0.103	0.147	0.220	0.323	0.425	0.528	0.674	0.997	1.378	1.818	0.87
220	0.104	0.148	0.222	0.326	0.430	0.534	0.682	1.009	1.394	1.839	0.89
225	0.105	0.150	0.225	0.330	0.435	0.540	0.690	1.020	1.410	1.860	0.91
230	0.106	0.152	0.227	0.334	0.440	0.546	0.698	1.031	1.426	1.881	0.93
235	0.107	0.153	0.230	0.337	0.445	0.552	0.705	1.042	1.441	1.901	0.95
240	0.108	0.155	0.232	0.341	0.449	0.558	0.713	1.053	1.456	1.921	0.97
245	0.110	0.157	0.235	0.344	0.454	0.563	0.720	1.064	1.471	1.941	0.99
250	0.111	0.158	0.237	0.348	0.459	0.569	0.727	1.075	1.486	1.961	1.01

Airflow calculation example for Pressures other than listed:- $\sqrt{\frac{\text{NewPa}}{\text{OldPa}}}$ **X Old l/s.**

E.g. 150 mm diameter duct with PDI measuring 5 Pa, from chart = 0.034 m³/s **(34 l/s).**

New Pressure reading 35 Pa. $\sqrt{\frac{35}{5}}$ X 34 = $\sqrt{7}$ X 34 = 2.6457513 x 34 = New Airflow **89 l/s**.

(Accurate to within 3 l/s across the range).

Reverse this procedure to determine a New Pressure from a known Airflow:- $\left[\frac{\text{Newl/s}}{\text{Oldl/s}}\right]^2$ X Old Pa.

E.g. 200 diameter duct with PDI measuring 55 Pa = 215 l/s. Change to 283 l/s Airflow.

$\left[\frac{283}{215}\right]^2$ X 55 = 1.316279^2 = 1.7325904 x 55 = **95 Pa.**

k fact	0.004	0.008	0.012	0.018	0.026	0.033	0.043	0.062	0.084	0.115	
nom DIA	100	125	150	175	200	225	250	300	350	400	
exact ID	94	119	144	169	194	219	244	294	344	394	
Pa	m³/s	m³/s	m³/s	m³/s	m³/s	m³/s	m³/s	m³/s	m³/s	m³/s	inch wg
5	0.009	0.018	0.027	0.040	0.058	0.074	0.096	0.139	0.188	0.257	0.02
10	0.013	0.025	0.038	0.057	0.082	0.104	0.136	0.196	0.266	0.364	0.04
15	0.015	0.031	0.046	0.070	0.101	0.128	0.167	0.240	0.325	0.445	0.06
20	0.018	0.036	0.054	0.080	0.116	0.148	0.192	0.277	0.376	0.514	0.08
25	0.020	0.040	0.060	0.090	0.130	0.165	0.215	0.310	0.420	0.575	0.10
30	0.022	0.044	0.066	0.099	0.142	0.181	0.236	0.340	0.460	0.630	0.12
35	0.024	0.047	0.071	0.106	0.154	0.195	0.254	0.367	0.497	0.680	0.14
40	0.025	0.051	0.076	0.114	0.164	0.209	0.272	0.392	0.531	0.727	0.16
45	0.027	0.054	0.080	0.121	0.174	0.221	0.288	0.416	0.563	0.771	0.18
50	0.028	0.057	0.085	0.127	0.184	0.233	0.304	0.438	0.594	0.813	0.20
55	0.030	0.059	0.089	0.133	0.193	0.245	0.319	0.460	0.623	0.853	0.22
60	0.031	0.062	0.093	0.139	0.201	0.256	0.333	0.480	0.651	0.891	0.24
65	0.032	0.064	0.097	0.145	0.210	0.266	0.347	0.500	0.677	0.927	0.26
70	0.033	0.067	0.100	0.151	0.218	0.276	0.360	0.519	0.703	0.962	0.28
75	0.035	0.069	0.104	0.156	0.225	0.286	0.372	0.537	0.727	0.996	0.30
80	0.036	0.072	0.107	0.161	0.233	0.295	0.385	0.555	0.751	1.029	0.32
85	0.037	0.074	0.111	0.166	0.240	0.304	0.396	0.572	0.774	1.060	0.34
90	0.038	0.076	0.114	0.171	0.247	0.313	0.408	0.588	0.797	1.091	0.36
95	0.039	0.078	0.117	0.175	0.253	0.322	0.419	0.604	0.819	1.121	0.38
100	0.040	0.080	0.120	0.180	0.260	0.330	0.430	0.620	0.840	1.150	0.40
105	0.041	0.082	0.123	0.184	0.266	0.338	0.441	0.635	0.861	1.178	0.42
110	0.042	0.084	0.126	0.189	0.273	0.346	0.451	0.650	0.881	1.206	0.44
115	0.043	0.086	0.129	0.193	0.279	0.354	0.461	0.665	0.901	1.233	0.46
120	0.044	0.088	0.131	0.197	0.285	0.361	0.471	0.679	0.920	1.260	0.48
125	0.045	0.089	0.134	0.201	0.291	0.369	0.481	0.693	0.939	1.286	0.50
130	0.046	0.091	0.137	0.205	0.296	0.376	0.490	0.707	0.958	1.311	0.52
135	0.046	0.093	0.139	0.209	0.302	0.383	0.500	0.720	0.976	1.336	0.54
140	0.047	0.095	0.142	0.213	0.308	0.390	0.509	0.734	0.994	1.361	0.56
145	0.048	0.096	0.144	0.217	0.313	0.397	0.518	0.747	1.011	1.385	0.58
150	0.049	0.098	0.147	0.220	0.318	0.404	0.527	0.759	1.029	1.408	0.60
155	0.050	0.100	0.149	0.224	0.324	0.411	0.535	0.772	1.046	1.432	0.62
160	0.051	0.101	0.152	0.228	0.329	0.417	0.544	0.784	1.063	1.455	0.64
165	0.051	0.103	0.154	0.231	0.334	0.424	0.552	0.796	1.079	1.477	0.67
170	0.052	0.104	0.156	0.235	0.339	0.430	0.561	0.808	1.095	1.499	0.69
175	0.053	0.106	0.159	0.238	0.344	0.437	0.569	0.820	1.111	1.521	0.71
180	0.054	0.107	0.161	0.241	0.349	0.443	0.577	0.832	1.127	1.543	0.73
185	0.054	0.109	0.163	0.245	0.354	0.449	0.585	0.843	1.143	1.564	0.75
190	0.055	0.110	0.165	0.248	0.358	0.455	0.593	0.855	1.158	1.585	0.77
195	0.056	0.112	0.168	0.251	0.363	0.461	0.600	0.866	1.173	1.606	0.79
200	0.057	0.113	0.170	0.255	0.368	0.467	0.608	0.877	1.188	1.626	0.81
205	0.057	0.115	0.172	0.258	0.372	0.472	0.616	0.888	1.203	1.647	0.83
210	0.058	0.116	0.174	0.261	0.377	0.478	0.623	0.898	1.217	1.667	0.85
215	0.059	0.117	0.176	0.264	0.381	0.484	0.631	0.909	1.232	1.686	0.87
220	0.059	0.119	0.178	0.267	0.386	0.489	0.638	0.920	1.246	1.706	0.89
225	0.060	0.120	0.180	0.270	0.390	0.495	0.645	0.930	1.260	1.725	0.91
230	0.061	0.121	0.182	0.273	0.394	0.500	0.652	0.940	1.274	1.744	0.93
235	0.061	0.123	0.184	0.276	0.399	0.506	0.659	0.950	1.288	1.763	0.95
240	0.062	0.124	0.186	0.279	0.403	0.511	0.666	0.960	1.301	1.782	0.97
245	0.063	0.125	0.188	0.282	0.407	0.517	0.673	0.970	1.315	1.800	0.99
250	0.063	0.126	0.190	0.285	0.411	0.522	0.680	0.980	1.328	1.818	1.01

Airflow calculation example for Pressures other than listed:- $\sqrt{\frac{\text{NewPa}}{\text{OldPa}}}$ **X Old l/s.**

E.g. 150 mm diameter duct with PDIA measuring 5 Pa, from chart = 0.027 m³/s **(27 l/s).**

New Pressure reading 10 Pa. $\sqrt{\frac{10}{5}}$ X 27 = $\sqrt{2}$ X 27 = 1.4142135 x 27 = New Airflow **38 l/s.**

(Accurate to within 1 l/s across the range)

Reverse this procedure to determine a New Pressure from a known Airflow:- $\left[\frac{\text{Newl/s}}{\text{Oldl/s}}\right]^2$ X Old Pa.

E.g. 200 diameter duct with PDIA measuring 55 Pa = 193 l/s. Change to 279 l/s Airflow.

$\left[\frac{279}{193}\right]^2$ X 55 = 1.4455958^2 = 2.0897472 x 55 = **115 Pa.**

ACCESSORIES – Turning Vane/Flow Measuring & Balancing

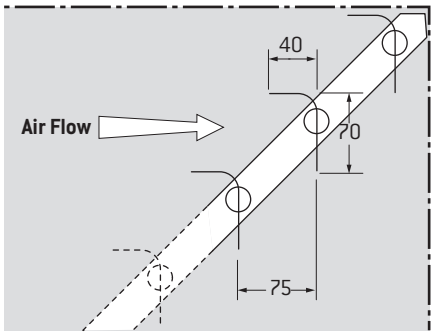
Models: **TVMA-90, TVMAI-90 (Insulated), TVA-90, TVAI-90 (Insulated).**

Model TVA-90 is an inlet adaptor primarily intended for use with series CMP square diffusers. It has been developed in recognition of the fallacy of so-called "cushion head boxes" which provide no better discharge pattern than a hard 90° bend. The turning vanes, set at 75 mm spacing, minimise asymmetry of discharge air.

Model TVMA-90 is similar, but with a PDIA averaging flow measuring probe, which provides an amplified pressure differential to be read by Magnahelic, or micromanometer. This pressure differential, when used with the formula provided gives fast, reliable and accurate air flow data without the distortion created by a collector funnel and with no significant friction loss.

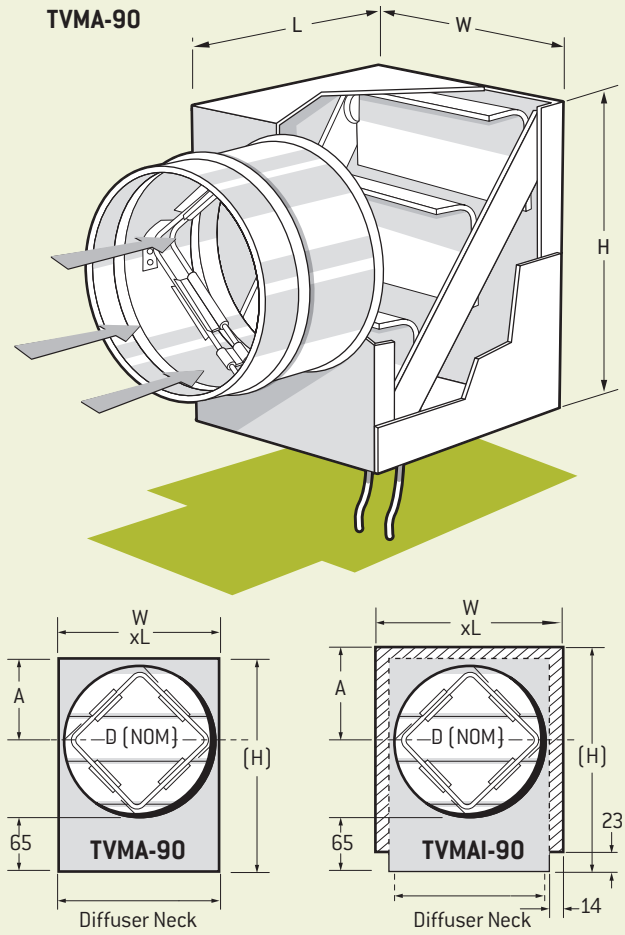
For both measuring and non measuring units, listed sizes are standard for CMP type diffusers. Other square or rectangular sizes can be furnished to special order. Both are available either plain, or internally lined with 14 mm insulation.

Turning Vane Arrangement



Note: For weight details contact your local Holyoake branch.

Inlet Adaptor



SIZE (Diffuser Neck)	No. of VANES	UNINSULATED				INSULATED 14 mm		
		D Max	W & L	H	A	W & L	H	A
150 x 150	2	150	155	215	75	180	229	89
225 x 225	3	225	230	290	113	255	304	127
300 x 300	4	300	305	365	150	330	379	164
375 x 375	5	375	380	440	188	405	454	202
450 x 450	6	450	455	515	225	480	529	239

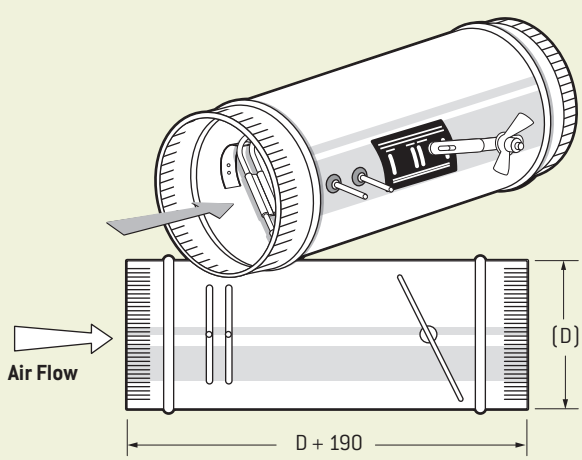
Models: **PDI-BS, PDIA-BS. Flow Balancing Stations.**

Models PDI-BS and PDIA-BS are balance stations consisting of a flow sensor mounted with a lever arm controlled disc damper, in a short section of round duct. They provide an excellent inexpensive method of balancing branch ducts using a pressure differential measuring instrument, as described for flow sensors on page 379K. Use PDIA-BS where duct velocities are between 2.5 m/s and 10 m/s and PDI-BS between 5 m/s and 14 m/s.

Flow Balancing Station – Sizes Available									
100	125	150	175	200	225	250	300	350	400

Note: For weight details contact your local Holyoake branch.

Flow Balancing Station



Product Ordering Key and Suggested Specifications

Product Reference	Quantity +	Description	Listed Size, W x H or Diameter +	Specification
ADC-2	1	Access Door Tab Type with Cam Locks.	450 x 450	ADC-2 and ADH-2 - Access Doors shall be constructed from double skin galvanized mild steel and are complete with cam locks and hinges, as appropriate. Dove tailed frame tabs are supplied for ease of installation. All shall be as manufactured by Holyoake.
ADH-2	5	Access Door Tab Type Hinged with Cam Locks.	200 x 200	
APP	4	Access Pressed Panel.	APP-SML (250 x 150) APP-MED (300 x 200) APP-LGE (450 x 350)	APP - Access Pressed Panels shall be constructed from galvanized mild steel and are complete with locking knobs. All shall be as manufactured by Holyoake.
AS25L	3	Air Scoop, Blades Parallel to Long Dimension.	900 x 300	AS25/AS50 Air Scoops - shall be constructed from a zinc coated steel casing with gang operated parallel blades (at 25, or 50 mm Pitch) and a hinged pre-punched strip, for setting. All shall be as manufactured by Holyoake.
AS25S	1	Air Scoop, Blades Parallel to Short Dimension.	300 x 900	
AS50L	5	Air Scoop, Blades Parallel to Long Dimension.	900 x 300	
AS50S	7	Air Scoop, Blades Parallel to Short Dimension.	300 x 900	
CH		Cushion Head - Ordering Codes & Specifications are shown on Page 376K & 386K		
DA25	4*	25 mm Duct Flange 5.8 m length.		**DUCT FLANGE** Duct Flanging System - For secure airtight joints for ductwork, dampers, and accessories. All shall be as supplied by Holyoake.
DA35	4*	35 mm Duct Flange 5.8 m length.		
DA25	16*	25 mm Corner (with clips) for use with DA25 Flange.		
DC35L	16*	35 mm Corner (with clips) for use with DA35 Flange.		
DCJ	256*	140 mm long snap on 'J' Cleats.		
DM SEAL	3*	15 m roll of Duct Flange Gasket Tape.		
*** Guide to form 8 o° 12 00 x 1200 Flange Assemblies.**				
DUCT TAPE	5	Each.	Silver Duct Tape 48 mm x 55 mm.	Duct Tape - A premium grade polyethylene coated cloth duct tape. All shall be as supplied by Holyoake.
	1	Carton of 24.		
EGS	5	Equalising Grid, Square, or Short Blades (600 x 600 Maximum).	Grille/Diffuser Neck Size, or Nominal Neck Size	EGS / EGL - Equalising Grids shall be constructed from extruded aluminium blades and Casing, stainless steel friction wire interlaced with blade axles, hold the required setting. Bright zinc plated clips fix the grids to the neck of the diffusers, or grille. All shall be as manufactured by Holyoake.
EGL	4	Equalising Grid, Long Blades (600 x 600 Maximum).	Grille/Diffuser Neck Size, or Nominal Neck Size	
OBD-1	5	Extruded Black Anodised Aluminium - OBD.	200 x 200	OBD - Opposed Blade Dampers shall be constructed from extruded black anodised aluminium. All shall be as manufactured by Holyoake.
OBD-2	7	Extruded Black Anodised Aluminium - OBD.	300 x 300	
OBD-3	2	Extruded Black Anodised Aluminium - OBD.	500 x 200	

+ Example

ACCESSORIES

Product Ordering Key and Suggested Specifications

Product Reference	Quantity +	Description	Listed Size, W x H, or Diameter +	Specification
PDI	3	Pressure Differential Indicator Sensor.	100 DIA	PDI/PDIA/FM-PDI/FM-PDIA/DM-PDIA/PDI-BS/PDIA-BS-Pressure Differential Indicator sensors and Flow Measuring and Flow Balancing stations shall be constructed from small diameter tubing with Galvanised steel sleeves and disc dampers where appropriate. All shall be as manufactured by Holyoake.
PDIA	7	Pressure Differential Indicator Sensor - Amplified.	150 DIA	
FM-PDI	2	PDI Flow Measuring Station.	300 DIA	
FM-PDIA	3	PDI Flow Measuring Station - Amplified.	400 DIA	
DM-PDIA	6	Flange Mounted PDIA for Rectangular Ducts.	Size 150	
PDI-BS	3	Flow Balancing Station.	100 DIA	
PDIA-BS	3	Flow Balancing Station - Amplified.	175 DIA	
PREMI-CH		PREMI-AIRE™ Cushion Head - Ordering Codes and Specification are shown on Page 386K.		
PREMI-AIRE™		PREMI-AIRE™ Pre-Insulated Duct System. See Page 387K.		
RD	20	Radial Balancing Damper.	RD 150	RD - Radial Balancing dampers shall be constructed from Galvanised Mild steel with UV Stabilized Fire Rated Polymer Drive Pinions. All shall be as manufactured by Holyoake.
SAB	10	Self Aligning Bend.	SAB 100	SAB - Self Aligning Bends shall be manufactured in four segments from Galvanized steel, to allow 90° to 180° bends. They shall be crimped both ends to insert into Spiroloc ducting. All shall be as manufactured by Holyoake.
SB (For use with CRA, CRP, CSRL, CSRLA, CSRV and CMP).	4	Sectorising Baffles.	Inlet DIA Neck Connection 300 DIA.	SB - Sectorising Baffles are satin etched black on steel and shall be manufactured in 45° sections, except CMP. All shall be as manufactured by Holyoake.
SPIN CON	10	Spin Connector (Suitable for Rigid, Semi Rigid and Flexible Ducting).	Nominal Duct DIA 300 DIA .	Spin Connectors/Spin Collars – shall be constructed from Galvanized Steel of 0.45 mm for sizes 100 - 250 mm and 0.55 mm for sizes 251 - 400 mm. For connection of Duct to Duct (Spin Con), or to provide a circular duct connection (Spin Collar), to a square, or rectangular plenum. All shall be as manufactured by Holyoake.
SPIN COL	5	Spin Collar (Suitable for Flexible Ducting).	Nominal Duct DIA 200 DIA .	
SSD	2	Stream Splitter Damper.	Neck Size 900 mm x 300 mm.	SSD - Stream Splitter Dampers shall be constructed from zinc coated steel finished in matt black and shall be designed to control volume and direction from a main to a branch duct. All shall be as manufactured by Holyoake.
SRA **	7	Square to Round Adaptor.	Nom W x H x DIA.	SRA/RRA/SSA – Square to Round, Rectangular to Round and Square to Square Adaptors shall be constructed from 0.55mm Galvanized Steel and shall be complete with a circular spin collar to suit circular duct, or a square duct connection. All shall be as manufactured by Holyoake.
RRA **	6	Rectangular to Round Adaptor.	Nom W x H x DIA.	
SSA ** **(For use with HI35, EC125, OBD-1, 2, 3, RD, BD 85 and other options).	7	Square to Square Adaptor.	Nom (W x H) x Nom (W x H).	
TRV	5	Throwing Reduction Vanes.	300 mm x 300 mm 5 Vanes.	TRV - Throw Reducing Vanes shall be manufactured from sheet Aluminium and shall be affixed to the rear of a CMP Diffuser. All shall be as manufactured by Holyoake. TVS/TVL – Turning Vanes have curved blades and shall be constructed from extruded aluminium. They shall be hinged and complete with a pre-punched strip for fixing. All shall be as manufactured by Holyoake. TVA-90/TVMAI-90/TVAI-90 and TVMA-90 - Turning Vane arrangements shall be constructed from zinc coated steel and finished in matt black and shall be designed to provide a better discharge pattern and accurate flow data, as appropriate. All shall be as manufactured by Holyoake.
TVS	2	Turning Vane, Short Blades.	150 mm x 300 mm.	
TVL	2	Turning Vane, Long Blades.	300 mm x 150 mm.	
TVA-90	3	Turning Vane Arrangement, Inlet Adaptor.	Diffuser Neck 150 mm x 150 mm.	
TVMA-90	1	Turning Vane Arrangement with PDIA, Inlet Adaptor.	300 mm x 150 mm.	
TVAI-90	5	Turning Vane Arrangement, Inlet Adaptor (Insulated).	375 mm x 375 mm.	
TVMAI-90	2	Turning Vane Arrangement with PDIA, Inlet Adaptor (Insulated).	300 mm x 300 mm.	

+ Example