

Pneumatic Installation Guidelines

Appendix H

External Air Porting

Ortlinghaus Series 0-420 and Series 0-406 Pneumatic Clutch/Brakes

The Series 0-420 and 0-406 Clutch/Brakes are normally ported through the hub for air delivered through the shaft. If, due to installation considerations for specific applications it is not practical to deliver the air to the clutch/brake through the shaft, the Series 0-420 and 0-406 may be modified to allow external air delivery.

Series 0-420

For the Series 0-420 the ports for external air delivery are in the face of the cylinder (the brake side). There are two ports 180° apart. For the location and size of the external air ports see Table H1 and Figure H1. Ports are shown with NPT pipe thread and inch series straight thread. Other thread types such as BSPP or metric may be used, but they must not exceed the diameter if the ports listed in Table H1. Also, it is very important that the fitting or pipe that is threaded into the external air port must not extend in any further than the thickness of the cylinder. If the fitting should extend beyond the thickness of the cylinder it can limit piston travel and prevent brake application. A proper connection may require a truncated NPT thread or a shortened fitting. This is particularly important for clutch/brake sizes 40 and smaller. The sizes 50 thru 93 have bosses where the external air ports are located, as is shown on figure H1, while the sizes 23, 29, and 40 do not have these bosses.

Series 0-406

For the Series 0-406 the ports for external air delivery are on the brake end of the hub. There are three air tubes that replace three of the stud bushings spaced 120° apart that have a BSPP female thread. Table H2 and Figure H2 show the location and size if the external air connections for the Series 0-406. Please note that due to the construction of the series 0-406 the air tubes move axially with the piston and end plate, and this motion must be allowed for, which requires the use of flexible hose. As the connections on the air tubes are BSPP, if another type of thread is needed, adaptor fittings must be used. A flange (with a port for a rotary union) and connecting hose assembly that bolts to the brake end of the clutch/brake is available for many sizes of the 0-406 Series, please contact Orttech for details.

Notes:

If external air delivery must be added to a clutch/brake that is already set up for through the hub air delivery the existing hub air ports must be plugged. This can be done using threaded plugs or by pressing a smooth steel plug coated with a sealant such as Loctite retaining compound into the air ports.

If installation considerations require special air inlet configurations please contact Orttech, as there may be other possibilities. If you have any questions on installation of an **Ortlinghaus** clutch/brake please contact Orttech

Table H1
Series 0-420 - External Air Porting Locations and Sizes

0-420 Size	"P" Center to Center of Ports		"A" Size of Port		"D" OD of C/B Body	
	mm	inches	NPT	Straight Thread	mm	inches
23	100	3.94	1/8	3/8-24	166	6.54
29	105	4.13	1/8	7/16-20	188	7.4
40	135	5.31	1/4	7/16-20	236	9.29
50	170	6.69	3/8	3/4-16	304	11.97
61	235	9.25	3/8	3/4-16	380	14.96
62	230	9.06	3/8	7/8-14	380	14.96
67	241	9.49	1/2	1-1/16 - 12	420	16.54
72	272	10.71	3/4	1-3/16 - 12	465	18.31
77	330	12.99	3/4	1-3/16 - 12	543	21.38
80	365	14.37	1	1-5/16 - 12	593	23.35
83	410	16.14	1	1-5/8 - 12	675	26.58
87	445	17.52	1	1-5/8 - 12	755	29.72
90	492	19.37	1-1/4	1-7/8 - 12	830	32.68
91	540	21.26	1-1/4	1-7/8 - 12	905	35.63
92	610	24.02	1-1/4	1-7/8 - 12	1015	39.96
93	674	26.54	1-1/2	2-1/2 - 12	1140	44.89

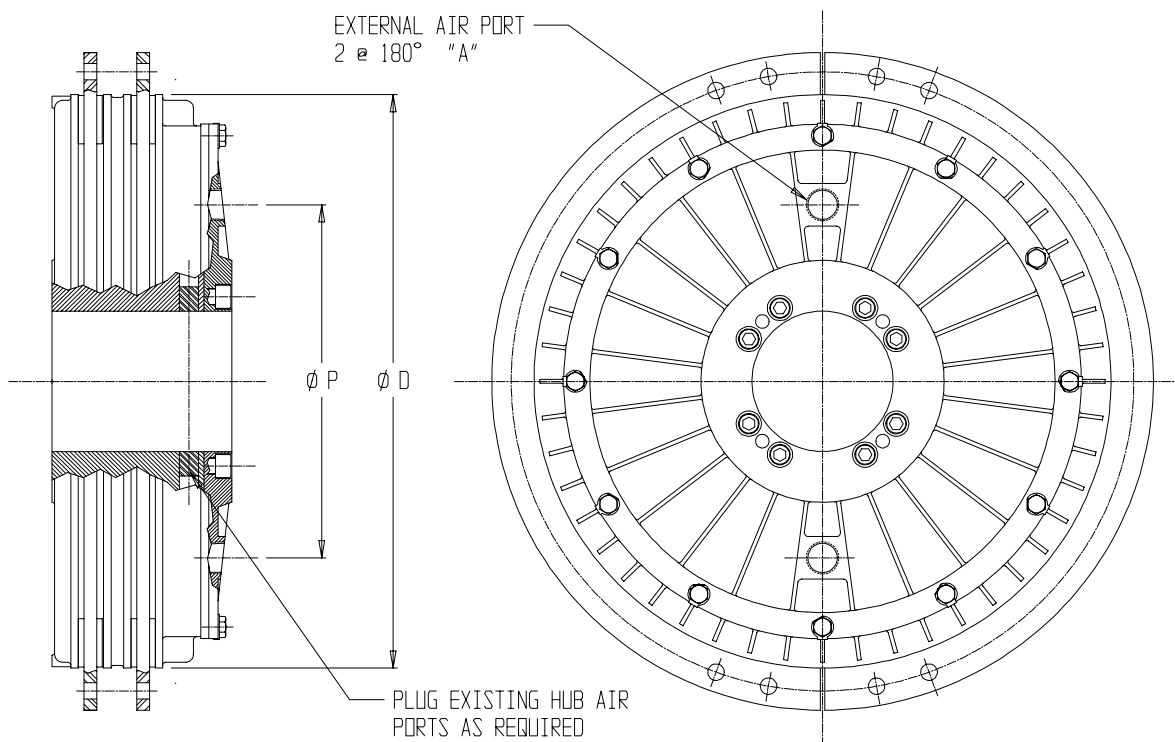


Figure H1

Table H2
Series 0-406 - External Air Porting Locations and Sizes

0-406 Size	"P" Center Circle of Ports		"A" Size of Port	"D" OD of C/B Body	
	mm	inches	BSP	mm	inches
29	Not Yet Available			188	7.40
40	162	6.38	G 1/4	236	9.29
50	Not Yet Available			304	11.97
61	Not Yet Available			380	14.96
71	335	13.19	G 1/2	465	18.31
76	388	15.28	G 1/2	543	21.38
79	425	16.73	G 3/4	593	23.35
82	490	19.29	G 1	675	26.57
90	590	23.23	G 1-1/4	830	32.68

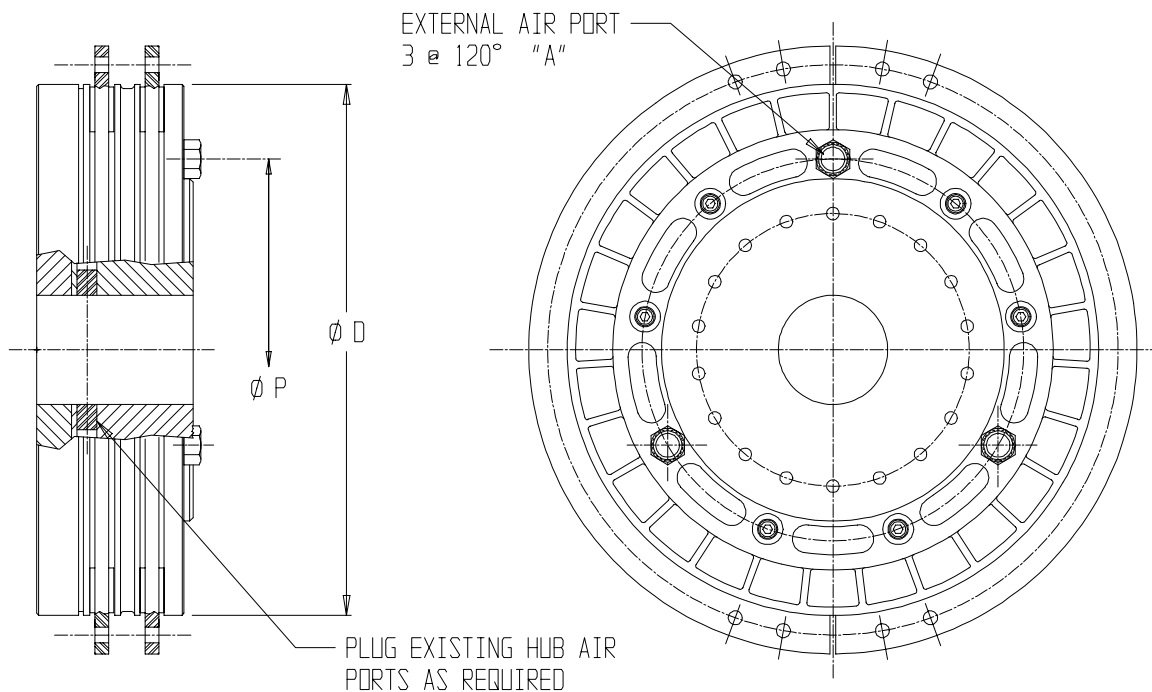


Figure H2

If you have any questions on external air porting, its applications with Ortlinghaus clutch/brakes, clutches, and brakes, or require a special air porting arrangement please call Orttech.

If a clutch/brake that has the standard hub air porting is to be converted to an external air version, the existing air ports in the hub must be plugged. To do this the clutch/brake must first be disassembled per the TPI [Technical Product Information] or other instructions provided. Once disassembled, the hub air ports are accessible. These may be plugged several different ways:

- Drill, ream, and tap for a NPT pipe plug.
- Drill and ream for a fitted steel cylindrical plug that is coated with a retaining compound such as Loctite RC-608 and pressed into place.
- Drill and tap a machine thread for a set screw with either inch or metric thread, and installing the set screw with Loctite # 262 on the threads.

Whichever method is used, care must be taken so that that the surface of the hub that the inner U-seal rides on is not damaged, and that the diameter of the hole required for the plug does not interfere with the inner U-seal during normal piston travel. Table H3 lists air port diameters and sizes of pipe plugs, cylindrical plugs, and set screws that can be used for the various sizes of the 0-420 and 0-406 Series clutch/brakes.

Table H3
Series 0-420 and 0-406 – Hub Air Port Information

C/B Series/Size	Hub Air Port		Recommended plug			
	mm	inches	NPT	Straight Plug (nom)	Inch Set Screw	Metric Set Screw
0-420, 23	4	0.1575	---	0.188	# 12 - 24	M 5 x 0.8
0-420, 29	5	0.1969	---	0.200	1/4 - 20	M 6 x 1
0-420, 40	6	0.2362	1/16	0.250	5/16 - 18	M 8 x 1.25
0-420, 50	8	0.3150	1/8	0.344	3/8 - 16	M 10 x 1.5
0-420, 61	11	0.4331	1/4	0.438	1/2 - 13	M 14 x 2
0-420, 62	13	0.5118	3/8	0.562	5/8 - 11	M 16 x 2
0-420, 67	14	0.5512	3/8	0.562	5/8 - 11	M 16 x 2
0-420, 72	16	0.6299	1/2	0.656	3/4 - 10	M 20 x 2.5
0-420, 77	18	0.7087	1/2	0.719	7/8 - 9	M 24 x 3
0-420, 80	20	0.7874	---	0.813	1 - 8	M 24 x 3
0-420, 83	21	0.8268	3/4	0.844	1 - 8	M 24 x 3
0-420, 87	23	0.9055	3/4	0.906	1-1/8 - 7	M 27 x 3
0-420, 90	25	0.9843	1	1.000	1-1/8 - 7	M 30 x 3.5
0-420, 91	30	1.1811	1	1.188	1-1/4 - 7	M 36 x 4
0-420, 92	32	1.2598	---	1.281	1-3/8 - 6	M 36 x 4
0-420, 93	35	1.3780	1-1/4	1.406	1-3/8 - 6	M 42 x 4.5
0-406, 29	6	0.2362	1/16	0.250	5/16 - 18	M 8 x 1.25
0-406, 40	8	0.3150	1/8	0.344	3/8 - 16	M 10 x 1.5
0-406, 50	10	0.3937	1/4	0.406	1/2 - 13	M 14 x 2
0-406, 61	14	0.5512	3/8	0.562	5/8 - 11	M 16 x 2
0-406, 71	17	0.6693	1/2	0.688	3/4 - 10	M 20 x 2.5
0-406, 76	20	0.7874	---	0.813	1 - 8	M 24 x 3
0-406, 79	22	0.8661	3/4	0.875	1-1/8 - 7	M 27 x 3
0-406, 82	25	0.9843	1	1.000	1-1/8 - 7	M 30 x 3.5
0-406, 90	30	1.1811	1	1.188	1-1/4 - 7	M 36 x 4