



PML-PAL Catalog of Products



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Henri Azaria P.A.L. provides R&D manufacturing solutions, custom-made parts and design services. Services include comprehensive technical support services, from assistance and consultation prior to purchase to ongoing training and repair services. Highly adaptable, the company prides itself on short production times and produces both large and small quantities including single parts. The finished products are thermally treated and coated or painted according to client specifications. The company is licensed by the Israeli Standard Institute and endorsed by Israeli high-tech industries.

PML-PAL
Precision Air Chucks



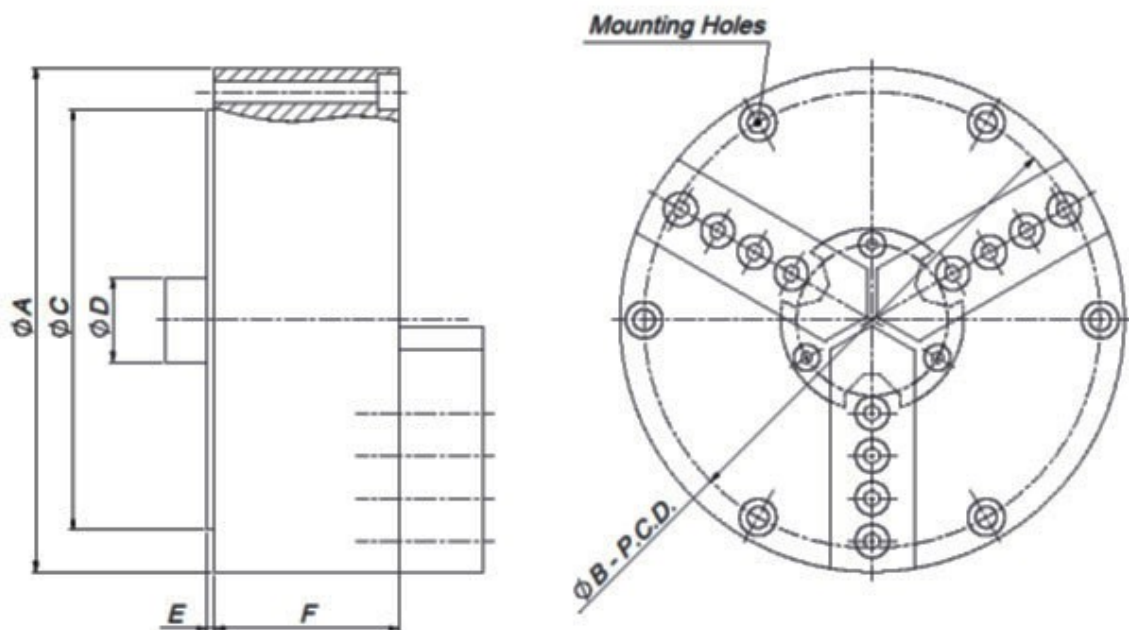


Model 150-3-2.5 BC

High Precision Turning Air Chuck

Turning air chucks are designed to be mounted on any CNC turning and conventional machine. Air pressure is monitored and set up for type of material including fragile and thin walled work piece. Repeatability is 0.002MM. Maximum speed is up to 5000 rpm. Chuck size ranges from 50MM to 350MM. Other sizes are available upon request. Air is supplied through the back center of the chuck via air feed tube (AFT).

Model	Mechanical parameters in MM						Technical parameters			
	Main Body						Jaws			
	A	B P.C.D.	C	D	E	F	No. of Jaws	Stroke On Diameter (MM)	Max. R.P.M. (r/ min)	Total Gripping Force (kgf) - 6 Bar
64-3-2 BC&NBC	63.5	52	50	21	2	42	2,3	2	3500	83
82-3-2 BC&NBC	82	70	60	21	2	50	2,3	2	3000	184
83-3-2.5 BC&NBC	83	70	60	21	2	55	2,3	2.5	3500	263
100-3-2.5 BC&NBC	100	88.9	82.6	21	2	56	2,3,4	2.5	3500	485
115-3-3 NBC-K	115	104	93.5	25	2	55	3	3	4000	780
125-3-2.5 BC&NBC	125	114.3	102	21	2	55	2,3,4	2.5	4000	970
150-3-2.5 BC&NBC	150	135.8	125	21	2	55	2,3,4*	2.5	4000	1240,1500*
150-3-2.5 BC&NBC-S	150	135.8	125	21	2	60	2,3	2.5	4500	1770
200-3-2.5 BC&NBC	203	183	168	21	7	81	2,3	2.5	2000	2800
250-3-2.5 BC&NBC	254	233.7	215.8	21	7	73.5	2,3	2.5	2000	3150



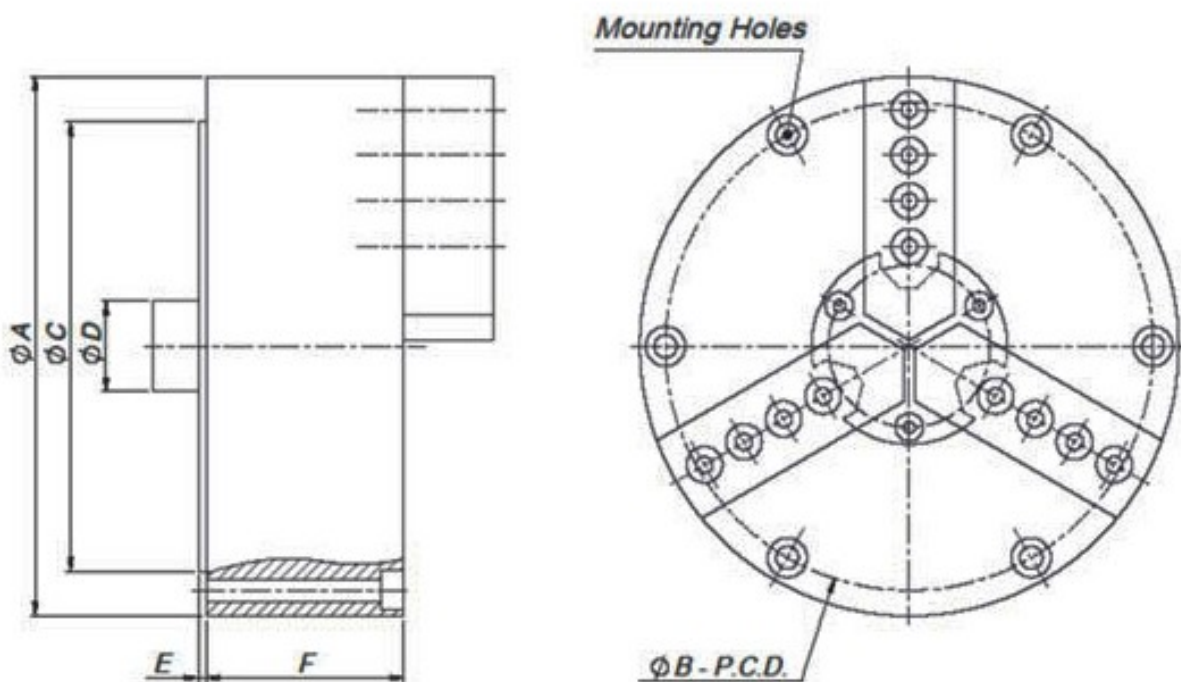


Model 107-3-2.5 BCG

High Precision Grinding Air Chuck

Grinding chucks are hermetically sealed, designed to operate on CNC grinding machines and conventional as well. The design prevents penetration of any swarf or metal dust into the chuck, minimizing maintenance or stoppage time. Other applications are machining abrasive materials such as powdered metal, carbide, and ceramics. Repeatability is 0.002MM. Chuck size range from 87MM to 265MM. Larger chucks are available upon request.

Model	Mechanical parameters in MM						Technical parameters			
	Main Body						Jaws			
	A	B P.C.D.	C	D	E	F	No. of Jaws	Stroke On Diameter (MM)	Max. R.P.M. (r/ min)	Total Gripping Force (kgf) - 6 Bar
87-3-2.5 BCG	87	70	60	21	2	53	2,3	2.5	3000	260
107-3-2.5 BCG	107	88.9	82.6	21	2	56	2,3	2.5	4000	490
135-3-2.5 BCG	135	101.6	114	21	2	60	2,3	2.5	4000	950
157-3-2.5 BCG	157	135.75	125	21	2	56	2,3	2.5	3500	1055
214-3-2.5 BCG	214	183	168	21	7	81	3	2.5	2000	2800
265-3-2.5 BCG	365	233.7	216	21	7	74	3	2.5	2000	3150



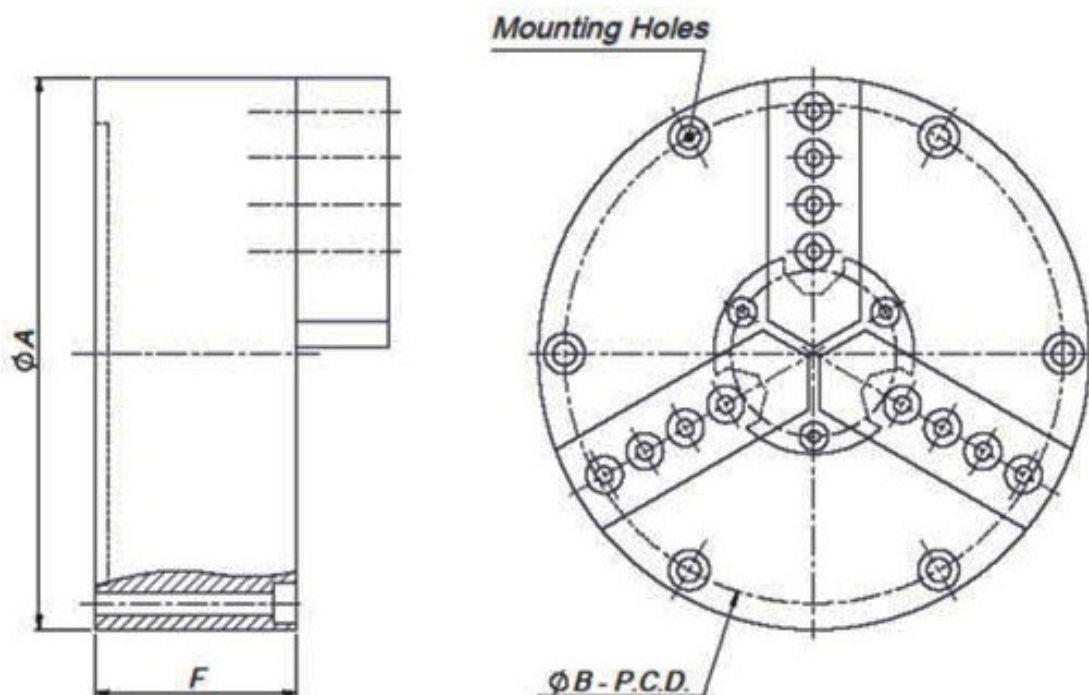


Model 82-3-2 ST

Precision Stationary (Milling) Air Chuck

Stationary precision air chucks are designed to clamp round and non-conventional shape work pieces on vertical or horizontal CNC milling machining centers, drilling or tapping machines. They automatically self-center. Loading and unloading is simple. Air is supplied directly into the side of the chuck body, and the chuck can be mounted directly to the machine table or a pallet. Repeatability is 0.002MM. Chuck size range from 64MM to 250MM. Standard number of jaws is 2 and 3. Larger chucks and number of jaws can be customized upon request.

Model	Mechanical parameters in MM			Technical parameters		
	Main Body			Jaws		
	A	B P.C.D.	F	No. of Jaws	Stroke On Diameter (MM)	Total Gripping Force (kgf) - 6 Bar
64-3-2 ST	64	52	42	2, 3	2	83
82-3-2 ST	82	70	50	2, 3	2	184
100-3-2.5 ST	100	88.9	56	2, 3, 4	2.5	485
125-3-2.5 ST	125	114.3	55	2, 3	2.5	970
150-3-2.5 ST	150	135.75	57	2, 3, 4	2.5	1240
200-3-2.5 ST	200	183	81	2, 3	2.5	2800
250-3-2.5 ST	250	233.7	74	2, 3	2.5	3150



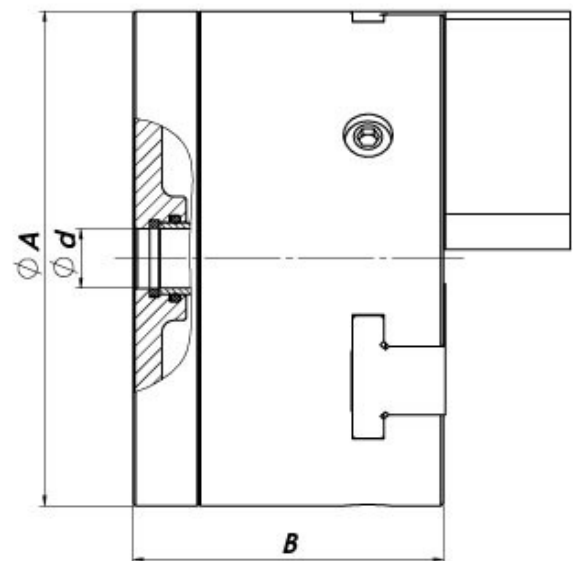
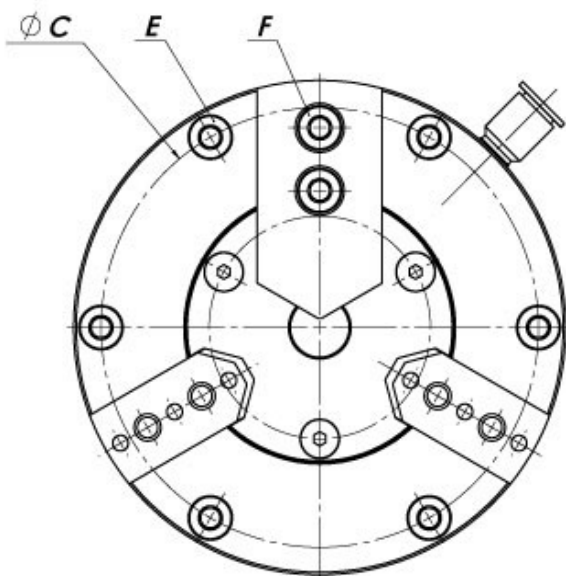


Model 100-2-2.5 ST-TH12

Stationary High Precision Pneumatic Chuck with through Hole

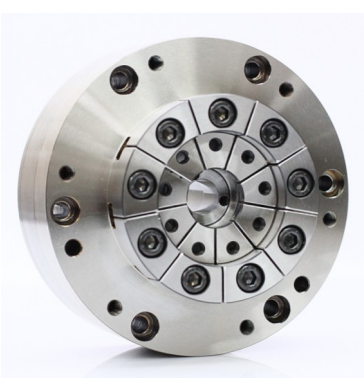
Stationary air chucks with through holes are designed to clamp work pieces longer than the jaw height. The through hole allows the long part to bury into the chuck's body. Repeatability is 0.002MM. Chuck size range from 83MM to 250MM. The hole size ranges from 12 to 80MM. Larger chucks and larger holes are available upon request.

Model	Mechanical parameters in MM					Technical parameters			
	Main Body					Jaws			
	A	B	C P.C.D.	d	E	No. of Jaws	Stroke On Diameter (MM)	Total Gripping Force (kNf) - 6 Bar	Feasible Air Pressure (bars)
83-3-2.5 ST TH12	83	57	70	12	M5x60	2,3	2.5	4	0.5-6
100-3-2.5 ST TH12	100	63	88.9	12	M5x65	2,3	2.5	7.5	0.5-6
125-3-2.5 ST TH20	125	57	114.3	20	M5x60	2,3	2.5	12	0.5-6
150-3-2.5 ST TH30	150	65	135.75	30	M6x70	2,3	2.5	20	0.5-6
200-3-3 ST TH50	203.2	90	183	50	M10x90	2,3	3	38	0.5-6





Model DCQ3-8TH9



Model DC4-9TH16



Model DC6-TH40

Super High Precision Diaphragm Chuck

Repeatability – The repeatability of this chuck is within 0.0005MM. It is guaranteed for long period.

Stable clamping – Work piece clamping is stable even at over 8000 rpm. Its unique design allows the jaws not to be affected by centrifugal force, assuring sub-micron accuracy and a super fine finish.

Flexible clamping power – Clamping is flexible in the cases of both internal and external chucking. The air pressure can be adjusted with great flexibility to the value, which suits an application by an air regulator. This feature enables the machining of “thin walls” without deforming the part dimensions.

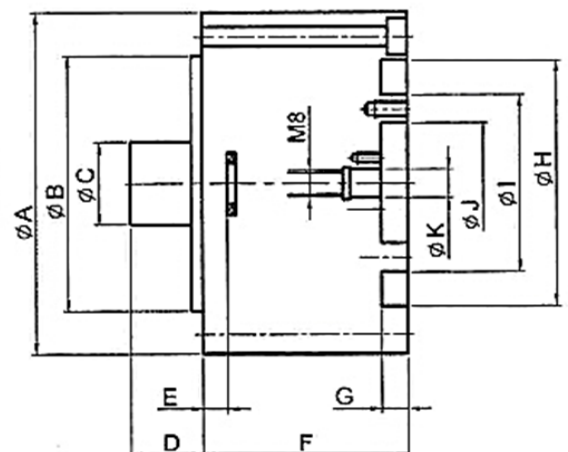
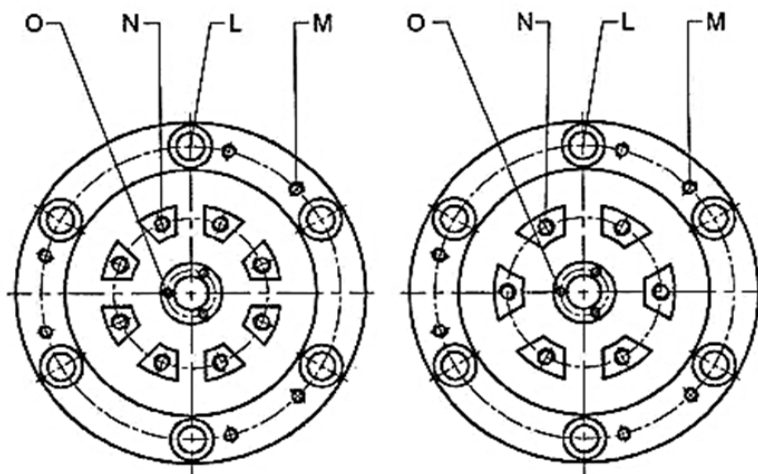
Maintenance free – This air chuck does not require lubrication. A unique design prevents penetration of cutting chips swarfing into the chuck body. Thus, this DC is ideal for any CNC turning, vertical machining and precise grinding operation.

High durability and stability – The jaw and front cover are made of special materials that have been heat-treated to maintain rigidity and accuracy over the long term.

Flexible application – This chuck can accommodate both internal and external chucking. Back stops can be designed inside the work piece, and outside by utilizing the external flange.

High speed turning ability – The standard model can be rotated up to 8,000 rpm. Our special faster model includes internal weights for counter balance, which can rotate at more than 11,000 rpm.

The high precision diaphragm air chuck size ranges from 80MM to 200MM. Customer may order thru hole Diaphragm Chuck upon request. A diaphragm tandem chuck is available in 100MM and 150MM.



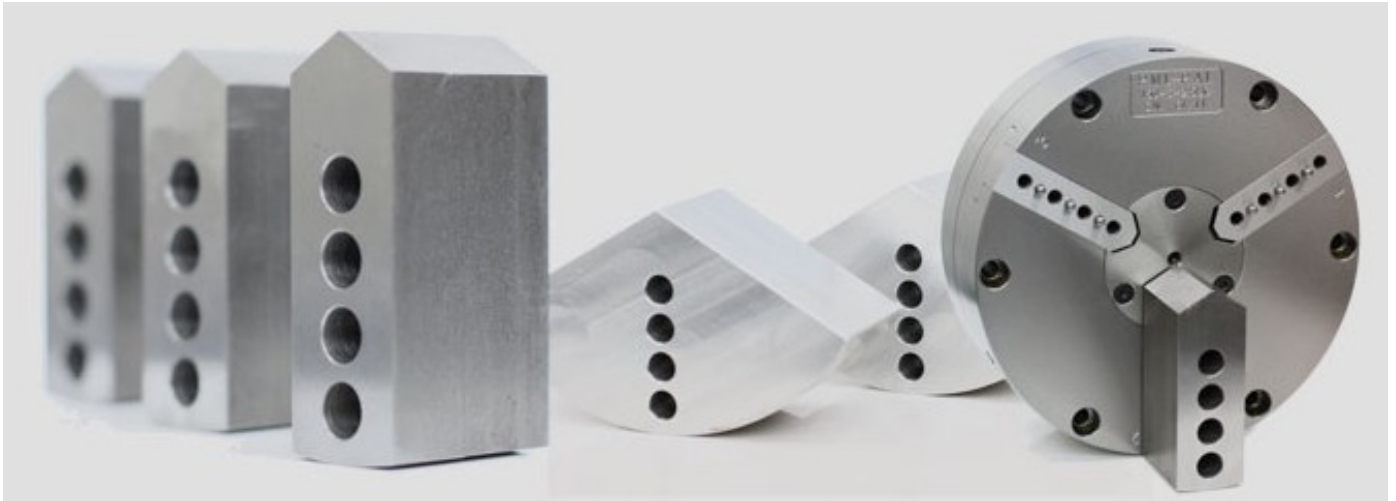
Super High Precision Diaphragm Chuck

Mechanical parameters in MM									
Model	No. Splits	A	B	C	D	E	F	G	I
DC3B	6/8	80	50.8	21	17	7	45	5	38
DC3B-Q	6/8	80	50.8	-	-	-	42	5	38
DC4	6/8	101	82.6	22	15	7	47	8	62
DC4B	6/8	101	82.6	22	15	7	50	8	62
DC4B-Q	6/8	101	82.6	-	-	-	50	8	62
DC4R	6/8	100	82.6	21	17	8	53	6	48
DC4BR	6/8	100	82.6	23	17	8	53	6	48
DC4TH12	6/8	101	82.6	-	-	-	47	8	62
DC5	6/8	127	102	22	13	9	42	-	70
DC5BTH26	6/8	127	102	-	-	-	59	9	75
DC6	6/8	150	125	22	13	9	52	10	80
DC6B	6/8	150	125	22	13	9	53	10	80
DC6B-Q	6/8	150	125	-	-	-	53	8	80
DC6BR	6/8	150	125	22	13	9	61	8	80
DC6TH40	6/8	150	125	-	-	-	52	10	80

Mechanical parameters in MM									
Model	No. Splits	J	K	L,M-PCD	M	N	N-PCD	O	Weight (kg)
DC3B	6/8	25	7	70	-	M4-8	31.5	-	1.3
DC3B-Q	6/8	25	7	70	-	M4-8	31.5	-	1.25
DC4	6/8	44	10	88.9	M5-6	M5-8	52	M3-3	2
DC4B	6/8	44	10	88.9	M5-6	M5-8	52	M3-3	2.3
DC4B-Q	6/8	44	10	88.9	M5-6	M5-8	52	M3-3	2
DC4R	6/8	32	10	88.9	M5-6	M5-8	40	M3-3	2.3
DC4BR	6/8	32	10	88.9	M5-6	M5-8	40	M3-3	2.4
DC4TH12	6/8	44	12	88.9	M5-6	M5-8	52	-	2
DC5	6/8	50	11	114.3	-	M5-8	60	M3-3	3.5
DC5BTH26	6/8	55	26	114.3	-	M5-8	65	-	4.3
DC6	6/8	60	11	135.89	M5-10	M6-8	70	M3-3	5.2
DC6B	6/8	60	11	135.89	M5-6	M6-8	70	M3-3	5.5
DC6B-Q	6/8	60	11	135.89	M5-6	M6-8	70	M3-3	5.2
DC6BR	6/8	60	11	135.89	M5-6	M6-8	70	M3-3	5.8
DC6TH40	6/8	60	40	135.89	M5-6	M6-8	70	-	5.2

Precision Air Chuck Jaws

PML-PAL top jaws are manufactured with tight tolerances to properly fit onto our chucks. Jaws may be customized per customer specifications. We offer three main types: block, pie and half pie/circle. The jaws are made from aluminum or steel as standard material. The jaws can be manufactured from other materials like plastic, brass or other per your specifications. They can be hardened and ground to specific sizes, dimensions and shapes. The height of our standard jaws is as shown on the table below.

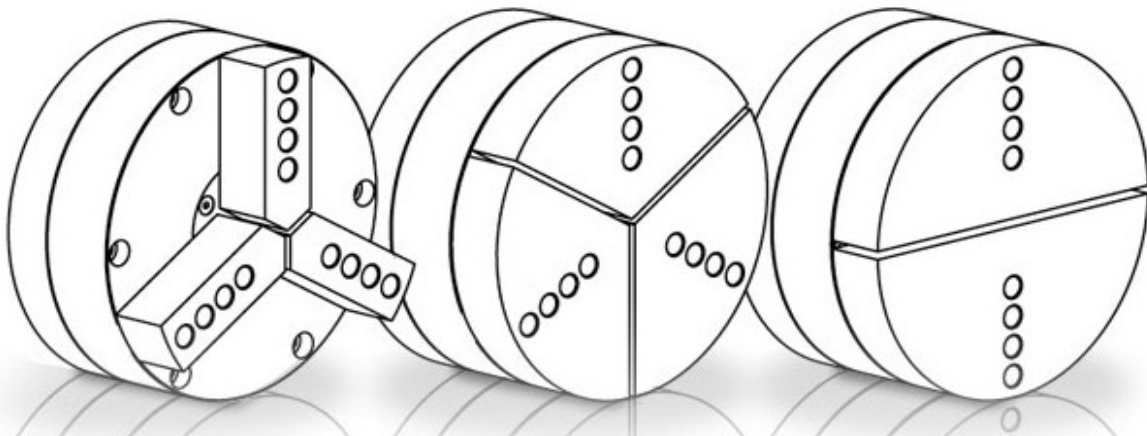


MM	Inch
25.4	1
38.1	1.5
50.8	2
63.5	2.5
76.2	3
101.6	4

Jaws Form 1
Block

Jaws Form 2
120° Pie

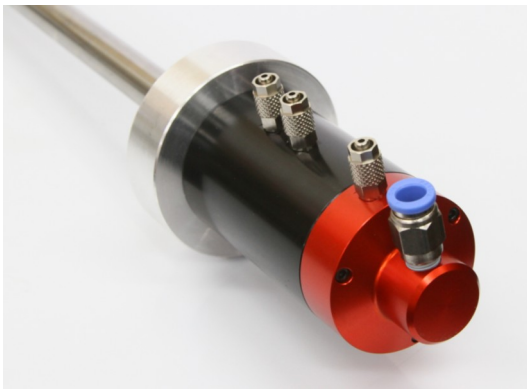
Jaws Form 3
180° Pie



Air Feed Tubes (AFT)

Air Feed Tube supplies air to a rotating chuck during operation. There are several types of AFT and others can be ordered upon request. Standard models are: BC/2 - has 2 airways, NBC/3 - has 2 airways, 1 coolant passage and 1 drain port. Special models supplied with 4, 5, or 6 airways, coolant passage and additional self-lubrication port. We do carry "thin" type Air Feed Device (AFD) suitable for rotary tables or 4th and 5th axes.

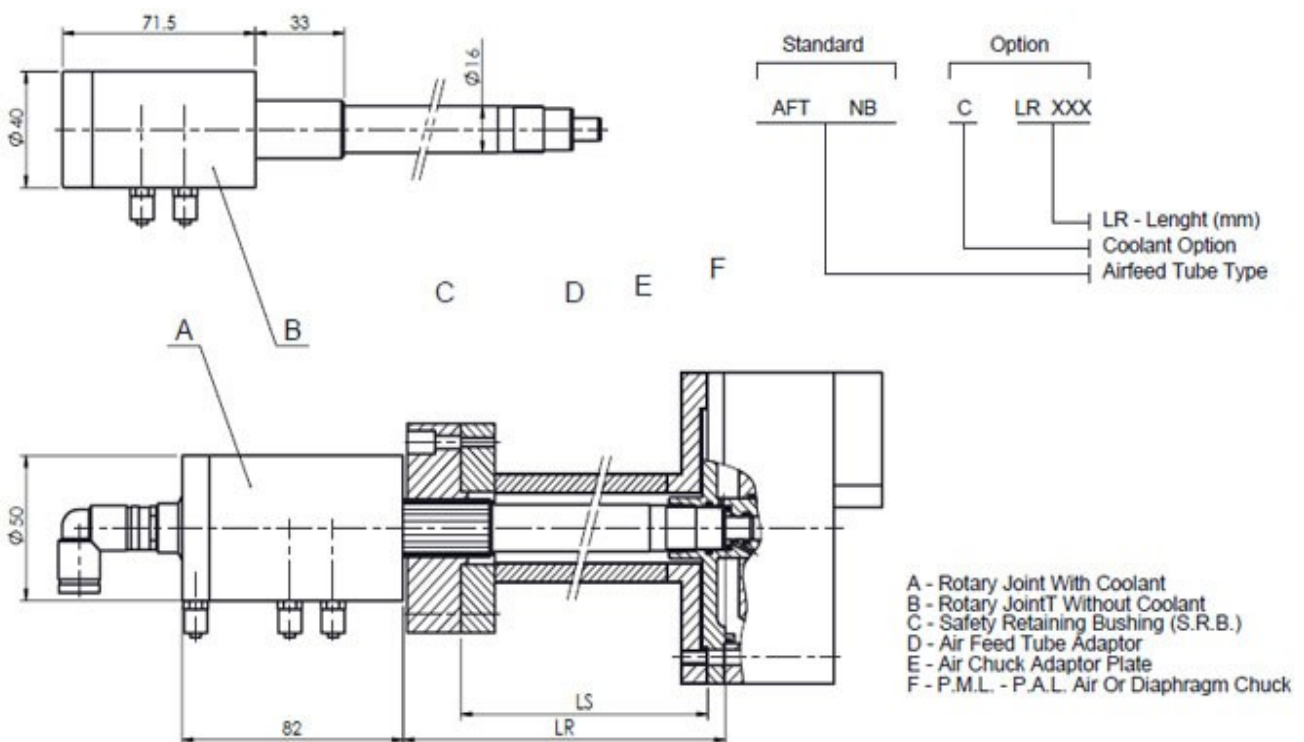
When ordering an AFT, please specify the following: LR=LS (spindle length) + (7~11MM) + E (chuck adaptor) + D (AFT adaptor) + C (S.R. Bushing) + S (Max. 5MM). Dimension differs according to the type of chuck: 7MM for types up to 125MM or 5" and 11MM for types 150MM or 6" and above.



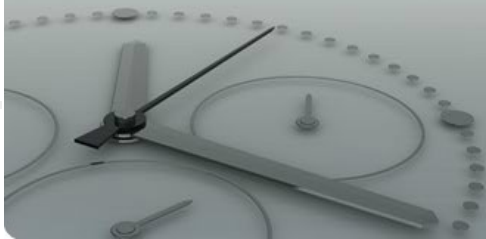
NBC/3 S: 2 air ways, 1 coolant passage for liquids (high pressure)



BC/2 Flex: 2 air ways for high speed



PML-PAL the Source for Precision Air Chucks



PML-PAL Machining Solutions

History

In 1993, the company acquired the PML line of high precision air chuck for which it provides R&D, worldwide marketing and technical services. PML-PAL precision chucks are auxiliary equipment designed to solve technical gripping challenges. These chucks are most helpful while gripping non-standard shapes and complicated precision work pieces, as well as for secondary operation of mass production and fine finishing cut-operations. These chucks are suitable for high speed turning, accurate milling, and precise grindings. There are specific chuck models for rotary tables, measuring applications and quality control, and many more specific or unique applications. In 1995, the company started manufacturing hermetically sealed diaphragm chucks that have a clamping repeatability of 0.0005 MM and can rotate at up to 15,000 rpm.



Ownership

PML-PAL high precision air chucks are manufactured by Henri Azaria P.A.L. Ltd., a family-owned machining company based in Petah Tikvah, Israel. In business since 1969, we design, manufacture and market PML-PAL brand high precision air chucks, fixtures and accessories. We are ISO9001 2008 certified.

PML-PAL Precision Air Chucks

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