

## Millimar DP50 / DP20

### 2-Jet Blind Hole Air Plug HCC

#### FEATURES

- Calibrated ID tooling for the Dimensionair® Air Gaging Systems
- Tooling is interchangeable without adjusting system magnification.
- Federal Air Plugs have large clearance (see table below), allowing easy entrance into the hole being measured and a greater measuring range.
- Long life - wide clearance and hard chrome (optional) body extends life of the Air Plug.
- Deep, recessed jets - Air jets are recessed into the plug body, protecting them from damage.
- Large jet size eliminates clogging from dirt and oils.
- **Order information:** Please always state when ordering: Transmission ratio of the display unit (e.g. 2500:1), the nominal size to be measured and the specified workpiece tolerance



#### Application:

Measurement of blind holes

#### Super-blind Plugs

Blind Hole Air Plugs can be furnished to check shorter holes than listed above, and can be furnished to check closer to the bottom of a hole. Holes must be at least 2.79 mm/.110" long, and the distance from the end of the plug to the center-line of the jets can be as short as 2.16 mm/.075" for plugs below 6.34 mm/.250" or 2.16 mm/.095" for plugs above 6.34 mm/.250".

#### TECHNICAL DATA

Order no.	Type	Nominal value	Nominal size in inches	Model	Magnification	Measuring span	Compatibility	Clearance	Minimum bore length	Including handle
		mm	inch			µm		mm	mm	
2092961	DP50	3.937 –4.696	.1550 –.1849"	hardened steel	2500:1	38	Federal	0.027	6.35	
2092962	DP50	4.699 –6.312	.1850 –.2485"	hardened steel	2500:1	51	Federal	0.03	6.35	
2092963	DP50	6.314 –9.484	.2486 –.3734"	hardened steel	2500:1	76	Federal	0.045	6.35	
2092964	DP50	9.487 –11.859	.3735 –.4669"	hardened steel	2500:1	76	Federal	0.045	6.35	
2092965	DP50	11.862 –14.933	.4670 –.5879"	hardened steel	2500:1	76	Federal	0.045	6.35	
2092966	DP50	14.935 –20.978	.5880 –.8259"	hardened steel	2500:1	76	Federal	0.045	6.35	
2092967	DP50	20.980 –28.699	.8260 –1.1299"	hardened steel	2500:1	76	Federal	0.045	6.35	
2092968	DP50	28.702 –37.691	1.1300 –1.4839"	hardened steel	2500:1	76	Federal	0.045	6.35	
2092969	DP50	37.694 –44.193	1.4840 –1.7399"	hardened steel	2500:1	76	Federal	0.045	6.35	
2092970	DP50	44.196 –63.751	1.7400 –2.5099"	hardened steel	2500:1	76	Federal	0.045	6.35	
2092971	DP50	63.754 –76.299	2.5100 –3.0039"	hardened steel	2500:1	76	Federal	0.045	6.35	
2092972	DP50	76.302 –89.151	3.0040 –3.5099"	hardened steel	2500:1	76	Federal	0.071	6.35	•
2092973	DP50	89.154 –101.851	3.5100 –4.0099"	hardened steel	2500:1	76	Federal	0.071	6.35	•
2092974	DP50	101.854 –114.300	4.0100 –4.5000"	hardened steel	2500:1	76	Federal	0.071	6.35	•
2092991	DP20	3.937 –4.696	.1550 –.1849"	hardened steel	5000:1	19	Federal	0.013	6.35	
2092992	DP20	4.699 –6.312	.1850 –.2485"	hardened steel	5000:1	25	Federal	0.015	6.35	
2092993	DP20	6.314 –9.484	.2486 –.3734"	hardened steel	5000:1	38	Federal	0.023	6.35	
2092994	DP20	9.487 –11.859	.3735 –.4669"	hardened steel	5000:1	38	Federal	0.023	6.35	
2092995	DP20	11.862 –14.933	.4670 –.5879"	hardened steel	5000:1	38	Federal	0.023	6.35	
2092996	DP20	14.935 –20.978	.5880 –.8259"	hardened steel	5000:1	38	Federal	0.023	6.35	
2092997	DP20	20.980 –28.699	.8260 –1.1299"	hardened steel	5000:1	38	Federal	0.023	6.35	
2092998	DP20	28.702 –37.691	1.1300 –1.4839"	hardened steel	5000:1	38	Federal	0.023	6.35	
2092999	DP20	37.694 –44.193	1.4840 –1.7399"	hardened steel	5000:1	38	Federal	0.023	6.35	
2093000	DP20	44.196 –63.751	1.7400 –2.5099"	hardened steel	5000:1	38	Federal	0.023	6.35	
2093001	DP20	63.754 –76.299	2.5100 –3.0039"	hardened steel	5000:1	38	Federal	0.023	6.35	
2093002	DP20	76.302 –89.151	3.0040 –3.5099"	hardened steel	5000:1	38	Federal	0.071	6.35	•
2093003	DP20	89.154 –101.851	3.5100 –4.0099"	hardened steel	5000:1	38	Federal	0.071	6.35	•
2093004	DP20	101.854 –114.300	4.0100 –4.5000"	hardened steel	5000:1	38	Federal	0.071	6.35	•

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Order no.	L <sub>2</sub>	g	Nominal size		A	B
	mm		mm	inch		
2092961	31.75	3/8"-32	3.937 -4.696	.1230 -.1339"	19.05	3.96
2092962	15.09	3/8"-32	4.699 -6.312	.1400 -.1849"	29.36	3.96
2092963	25.4	3/8"-32	6.314 -9.484	.1850 -.2485"	29.36	3.96
2092964	25.4	3/8"-32	9.487 -11.859	.2486 -.3734"	29.36	3.96
2092965	25.4	3/8"-32	11.862 -14.933	.3735 -.4919"	29.36	3.96
2092966	25.4	3/8"-32	14.935 -20.978	.4920 -.5389"	29.36	3.96
2092967	25.4	3/8"-32	20.980 -28.699	.5390 -.5879"	29.36	3.96
2092968	25.4	3/8"-32	28.702 -37.691	.5880 -.8259"	29.36	3.96
2092969	25.4	3/8"-32	37.694 -44.193	.08260 -1.1299"	35.71	3.96
2092970	31.75	3/8"-32	44.196 -63.751	1.1300 -1.4839"	35.71	3.96
2092971	31.75	3/8"-32	63.754 -76.299	1.4840 -1.7399	35.71	3.96
2092972	31.75	3/8"-32	76.302 -89.151	1.7400 -2.5099	38.1	3.96
2092973	34.14	3/8"-32	89.154 -101.851	2.5100 -3.0039"	38.1	3.96
2092974	34.14	3/8"-32	101.854 -114.300	3.0040 -3.5099"	38.1	3.96
2092991	34.14	3/8"-32	3.937 -4.696	3.5100 -4.0990"	19.05	3.96
2092992	15.09	3/8"-32	4.699 -6.312	4.0991 -4.5000"	29.36	3.96
2092993	25.4	3/8"-32	6.314 -9.484	.1230 -.1339"	29.36	3.96
2092994	25.4	3/8"-32	9.487 -11.859	.1400 -.1849"	29.36	3.96
2092995	25.4	3/8"-32	11.862 -14.933	.1850 -.2485"	29.36	3.96
2092996	25.4	3/8"-32	14.935 -20.978	.2486 -.3734"	29.36	3.96
2092997	25.4	3/8"-32	20.980 -28.699	.3735 -.4919"	29.36	3.96
2092998	25.4	3/8"-32	28.702 -37.691	.4920 -.5389"	29.36	3.96
2092999	25.4	3/8"-32	37.694 -44.193	.5390 -.5879"	35.71	3.96
2093000	31.75	3/8"-32	44.196 -63.751	.5880 -.8259"	35.71	3.96
2093001	31.75	3/8"-32	63.754 -76.299	.08260 -1.1299"	35.71	3.96
2093002	31.75	3/8"-32	76.302 -89.151	1.1300 -1.4839"	38.1	3.96
2093003	34.14	3/8"-32	89.154 -101.851	1.4840 -1.7399	38.1	3.96
2093004	34.14	3/8"-32	101.854 -114.300	1.7400 -2.5099	38.1	3.96

## ACCESSORIES

Order no.	Product name	g	Product type
2237666	Standard plastic handle	3/8"-32	
2237873	Depth stop ring for Federal nozzle plug gage		
2239307	Universal bench mount	3-8"/32	
2240993	Shut off slide valve	3/8"-32	
2201954	Extension for nominal sizes from 9.487 to 12.494 mm, D = 9 mm, L = 51 mm	5/16"-32	AEX-1
2201963	Extension for nominal sizes from 9.487 to 12.494 mm, D = 9 mm, L = 102 mm	5/16"-32	AEX-2
2202010	Extension for nominal sizes up to 76.3 mm, D = 12 mm, L = 102 mm	3/8"-32	AHA-4
2202011	Extension for nominal sizes up to 76.3 mm, D = 12 mm, L = 51 mm	3/8"-32	AHA-5
2202074	Connecting hose, 0.9 m	3/8"-32	AHO-1
2202075	Connecting hose, 1.8 m	3/8"-32	AHO-10
2202094	Connecting hose, 1.5 m	3/8"-32	AHO-8



## Millimar DP50 / DP20

### Nozzle Through-Hole Pin

#### FEATURES

- Calibrated ID tooling for the Dimensionair® Air Gaging Systems
- Tooling is interchangeable without adjusting system magnification.
- Federal Air Plugs have large clearance (see table below), allowing easy entrance into the hole being measured and a greater measuring range.
- Long life - wide clearance and hard chrome (optional) body extends life of the Air Plug.
- Deep, recessed jets - Air jets are recessed into the plug body, protecting them from damage.
- Large jet size eliminates clogging from dirt and oils.
- **Order information:** Please always state when ordering: Transmission ratio of the display unit (e.g. 2500:1), the nominal size to be measured and the specified workpiece tolerance

#### Application:

Measurement of through holes



#### TECHNICAL DATA

Order no.	Type	Nominal value	Nominal size in inches	Model	Magnification	Measuring span	Compatibility	Clearance	Minimum bore length	Including handle
		mm	inch					mm	mm	
2092945	DP50	3.124 -3.553	.1230 -.1339"	hardened steel	2500:1	25	Federal	0.015	4.75	
2092946	DP50	3.556 -4.696	.1400 -.1849"	hardened steel	2500:1	38	Federal	0.027	4.75	
2092947	DP50	4.699 -6.312	.1850 -.2485"	hardened steel	2500:1	51	Federal	0.03	4.75	
2092948	DP50	6.314 -9.484	.2486 -.3734"	hardened steel	2500:1	76	Federal	0.045	6.35	
2092949	DP50	9.487 -12.494	.3735 -.4919"	hardened steel	2500:1	76	Federal	0.045	6.35	
2092950	DP50	12.497 -13.688	.4920 -.5389"	hardened steel	2500:1	76	Federal	0.045	6.35	
2092951	DP50	13.691 -14.933	.5390 -.5879	hardened steel	2500:1	76	Federal	0.045	6.35	
2092952	DP50	14.935 -20.978	.5880 -.8259"	hardened steel	2500:1	76	Federal	0.045	6.35	
2092953	DP50	20.980 -28.699	.08260 -1.1299"	hardened steel	2500:1	76	Federal	0.045	6.35	
2092954	DP50	28.702 -37.691	1.1300 -1.4839"	hardened steel	2500:1	76	Federal	0.045	6.35	
2092955	DP50	37.694 -44.193	1.4840 -1.7399	hardened steel	2500:1	76	Federal	0.045	6.35	
2092956	DP50	44.196 -63.751	1.7400 -2.5099	hardened steel	2500:1	76	Federal	0.045	6.35	
2092957	DP50	63.754 -76.299	2.5100 -3.0039"	hardened steel	2500:1	76	Federal	0.045	6.35	
2092958	DP50	76.302 -89.151	3.0040 -3.5099"	hardened steel	2500:1	76	Federal	0.071	6.35	•
2092959	DP50	89.154 -104.115	3.5100 -4.0990"	hardened steel	2500:1	76	Federal	0.071	6.35	•
2092960	DP50	104.117 -114.300	4.0991 -4.5000"	hardened steel	2500:1	76	Federal	0.071	6.35	•
2092975	DP20	3.124 -3.553	.1230 -.1339"	hardened steel	5000:1	13	Federal	0.009	4.75	
2092976	DP20	3.556 -4.696	.1400 -.1849"	hardened steel	5000:1	19	Federal	0.013	4.75	
2092977	DP20	4.699 -6.312	.1850 -.2485"	hardened steel	5000:1	25	Federal	0.015	4.75	
2092978	DP20	6.314 -9.484	.2486 -.3734"	hardened steel	5000:1	38	Federal	0.023	6.35	
2092979	DP20	9.487 -12.494	.3735 -.4919"	hardened steel	5000:1	38	Federal	0.023	6.35	
2092980	DP20	12.497 -13.688	.4920 -.5389"	hardened steel	5000:1	38	Federal	0.023	6.35	
2092981	DP20	13.691 -14.933	.5390 -.5879	hardened steel	5000:1	38	Federal	0.023	6.35	
2092982	DP20	14.935 -20.978	.5880 -.8259"	hardened steel	5000:1	38	Federal	0.023	6.35	
2092983	DP20	20.980 -28.699	.08260 -1.1299"	hardened steel	5000:1	38	Federal	0.023	6.35	
2092984	DP20	28.702 -37.691	1.1300 -1.4839"	hardened steel	5000:1	38	Federal	0.023	6.35	
2092985	DP20	37.694 -44.193	1.4840 -1.7399	hardened steel	5000:1	38	Federal	0.023	6.35	
2092986	DP20	44.196 -63.751	1.7400 -2.5099	hardened steel	5000:1	38	Federal	0.023	6.35	
2092987	DP20	63.754 -76.299	2.5100 -3.0039"	hardened steel	5000:1	38	Federal	0.023	6.35	
2092988	DP20	76.302 -89.151	3.0040 -3.5099"	hardened steel	5000:1	38	Federal	0.071	6.35	•
2092989	DP20	89.154 -104.115	3.5100 -4.0990"	hardened steel	5000:1	38	Federal	0.071	6.35	•
2092990	DP20	104.117 -114.300	4.0991 -4.5000"	hardened steel	5000:1	38	Federal	0.071	6.35	•

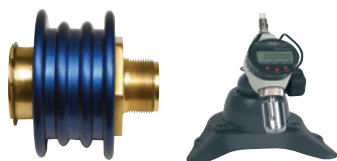
## Millimar DP50 / DP20

## Nozzle Through-Hole Pin

Order no.	L <sub>2</sub>	g	Nominal size	Nominal size	A	B
	mm		mm	inch	mm	mm
2092945	19.05	3/8"-32	3.124 -3.553	.1230 -.1339"	23.8	4.75
2092946	19.05	3/8"-32	3.556 -4.696	.1400 -.1849"	23.8	4.75
2092947	25.4	3/8"-32	4.699 -6.312	.1850 -.2485"	38.1	12.70
2092948	25.4	3/8"-32	6.314 -9.484	.2486 -.3734"	38.1	12.70
2092949	25.4	3/8"-32	9.487 -12.494	.3735 -.4919"	38.1	12.70
2092950	25.4	3/8"-32	12.497 -13.688	.4920 -.5389"	38.1	12.70
2092951	25.4	3/8"-32	13.691 -14.933	.5390 -.5879"	38.1	12.70
2092952	25.4	3/8"-32	14.935 -20.978	.5880 -.8259"	41.28	15.88
2092953	25.4	3/8"-32	20.980 -28.699	.8260 -1.1299"	41.28	15.88
2092954	25.4	3/8"-32	28.702 -37.691	1.1300 -1.4839"	41.28	15.88
2092955	31.75	3/8"-32	37.694 -44.193	1.4840 -1.7399"	50.8	19.05
2092956	31.75	3/8"-32	44.196 -63.751	1.7400 -2.5099"	50.8	19.05
2092957	31.75	3/8"-32	63.754 -76.299	2.5100 -3.0039"	50.8	19.05
2092958	31.75	3/8"-32	76.302 -89.151	3.0040 -3.5099"	50.8	19.05
2092959	31.75	3/8"-32	89.154 -104.115	3.5100 -4.0990"	50.8	19.05
2092960	31.75	3/8"-32	104.117 -114.300	4.0991 -4.5000"	50.8	19.05
2092975	19.05	3/8"-32	3.124 -3.553	.1230 -.1339"	23.8	4.75
2092976	19.05	3/8"-32	3.556 -4.696	.1400 -.1849"	23.8	4.75
2092977	25.4	3/8"-32	4.699 -6.312	.1850 -.2485"	38.1	12.70
2092978	25.4	3/8"-32	6.314 -9.484	.2486 -.3734"	38.1	12.70
2092979	25.4	3/8"-32	9.487 -12.494	.3735 -.4919"	38.1	12.70
2092980	25.4	3/8"-32	12.497 -13.688	.4920 -.5389"	38.1	12.70
2092981	25.4	3/8"-32	13.691 -14.933	.5390 -.5879"	38.1	12.70
2092982	25.4	3/8"-32	14.935 -20.978	.5880 -.8259"	41.28	15.88
2092983	25.4	3/8"-32	20.980 -28.699	.8260 -1.1299"	41.28	15.88
2092984	25.4	3/8"-32	28.702 -37.691	1.1300 -1.4839"	41.28	15.88
2092985	31.75	3/8"-32	37.694 -44.193	1.4840 -1.7399"	50.8	19.05
2092986	31.75	3/8"-32	44.196 -63.751	1.7400 -2.5099"	50.8	19.05
2092987	31.75	3/8"-32	63.754 -76.299	2.5100 -3.0039"	50.8	19.05
2092988	31.75	3/8"-32	76.302 -89.151	3.0040 -3.5099"	50.8	19.05
2092989	31.75	3/8"-32	89.154 -104.115	3.5100 -4.0990"	50.8	19.05
2092990	31.75	3/8"-32	104.117 -114.300	4.0991 -4.5000"	50.8	19.05

## ACCESSORIES

Order no.	Product name	g	Product type
2237666	Standard plastic handle	3/8"-32	
2237873	Depth stop ring for Federal nozzle plug gage		
2239307	Universal bench mount	3-8"/32	
2240993	Shut off slide valve	3/8"-32	
2201954	Extension for nominal sizes from 9.487 to 12.494 mm, D = 9 mm, L = 51 mm	5/16"-32	AEX-1
2201963	Extension for nominal sizes from 9.487 to 12.494 mm, D = 9 mm, L = 102 mm	5/16"-32	AEX-2
2202010	Extension for nominal sizes up to 76.3 mm, D = 12 mm, L = 102 mm	3/8"-32	AHA-4
2202011	Extension for nominal sizes up to 76.3 mm, D = 12 mm, L = 51 mm	3/8"-32	AHA-5
2202074	Connecting hose, 0.9 m	3/8"-32	AHO-1
2202075	Connecting hose, 1.8 m	3/8"-32	AHO-10
2202094	Connecting hose, 1.5 m	3/8"-32	AHO-8



## Millimar AAT-19 / AAT-20

### Single Jet Probe

#### FEATURES

- Jet probes provide convenient modular gageheads for use in hand-held gages and for designing gage fixtures
- 9.5 mm / .375" bodies provide standardized mounting configurations
- Compact size allows easy access to hard-to-reach dimensions
- Jet probes are calibrated for instant use with Dimensionair® systems - just set zero and measure!
- Available in single-probe and matched-probe configurations
- Jet probes are similar to air probes, except they have an open jet at the end instead of a contacting spindle
- Ideal for measuring flatness of surfaces which cannot be touched, or for building into fixture designs where air gaging is called for
- Can be used with 2500:1, 5000:1 Dimensionair® (supplied singly or in matched pairs)
- Supplied with AHO-1 air hose, a zero setting valve, and hardware for mounting to the Dimensionair®



#### TECHNICAL DATA

Order no.	2086612	2086613
Product type	AAT-19	AAT-20
Magnification	2500:1	
Design	Single jet probe	Matched jet probe pair