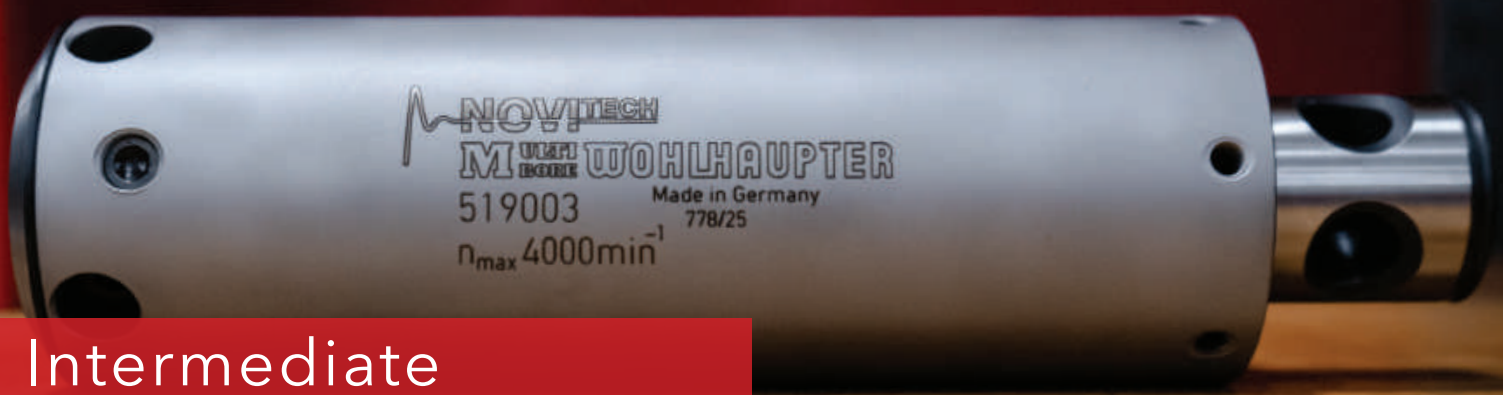
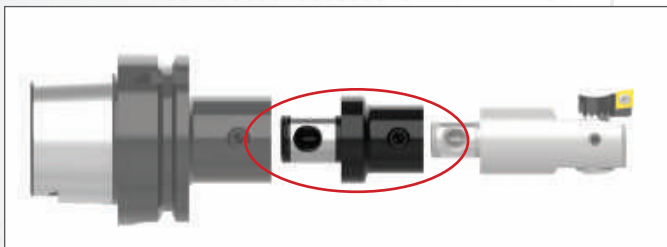


Intermediate Modules Product Overview



Intermediate MODULES

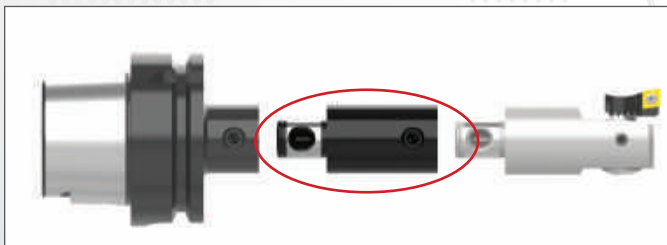
Reducers



Features:

- ▶ Improves rigidity by stepping-down to smaller MVS connection sizes
- ▶ Connects quickly and easily with the MVS connection
- ▶ Accommodates smaller diameter applications

Extensions



Features:

- ▶ Used to increase bore depth
- ▶ Connects quickly and easily with the MVS connection
- ▶ Aluminum components available to reduce stress on the spindle

WOHLHAUPTER® FINE BORING HEAD with NOVI^{TECH}®

Are you looking for more from your tooling?

After facing problems with chatter and chipping inserts, our customer, who machines fueling machine head rotors from ASTM A276 - 304L in the nuclear power industry, sought a better solution to their machining process.

The customer turned to Allied for help finding a new solution. Once the causes of insert failure and chatter were identified, our experienced team was able to create the best assembly suitable for the application. Using **Wohlhaupter's analog balanced fine boring head** paired with the **NOVI^{TECH} vibration damper module**, they were able to eliminate the issues our customers were facing.

With the previous tooling, the customer achieved only 12 minutes of tool life, but with Allied's Wohlhaupter assembly, they achieved more than four times the life for 65 minutes!

Allied's Wohlhaupter assembly improved the machining process by making it more consistent and saved the customer money by reducing cost per hole. If you are looking to save time and money, **give us a call, and we will help you find the right solution.**



Product: Wohlhaupter analog balanced fine boring head with NOVI ^{TECH} Objectives: (1) Decrease cycle time (2) Improve process Industry: Renewable energy/energy Part: Nuclear fueling machine head rotor Material: ASTM A276-304L Hole Ø: 4.7244" (120 mm) Hole Depth: 40.9449" (1040 mm)	Measure	Competitor Boring Head	Wohlhaupter Fine Boring Head with NOVI ^{TECH}
	RPM	106	372
	Speed Rate	131.234 SFM (40 M/min)	459.318 SFM (140 M/min)
	Feed Rate	0.003 IPR (0.076 mm/rev)	0.006 IPR (0.16 mm/rev)
	Penetration Rate	0.315 IPM (8 mm/min)	2.362 IPM (60 mm/min)
	Cycle Time	2 hr 10 min	17 min
	Tool Life	12 min	65 min
	Wohlhaupter offered 93.32% cost per hole savings over the competitor tooling.		

- ▶ Analog balanced fine boring head
- ▶ Boring insert
Item No. 297994WHC111
- ▶ NOVI^{TECH} vibration damper intermediate module
Item No. 519004



86.92%
cycle time reduction

The Wohlhaupter boring head with the NOVI^{TECH} vibration damper module provided:

- ✓ Increased penetration rate
- ✓ Decreased cycle time
- ✓ Increased tool life
- ✓ Decreased cost per hole

NOVI^{TECH}® Vibration Damping Intermediate Modules Overview

THE DEEP HOLE 10xD BORING SOLUTION YOU'VE BEEN LOOKING FOR



OUR **SOLUTION**

- ▶ Machine up to **10xD**
- ▶ Connect quickly and easily with the **MVS connection**
- ▶ Utilize existing **Wohlschlaeger**® components
- ▶ **Increase** your productivity, surface quality, and process reliability
- ▶ **Increase** your tool and spindle life

YOUR **ADVANTAGE**

Damper module with viscoelastic bearing

Absorber mass

THE SURFACE QUALITY TELLS IT ALL

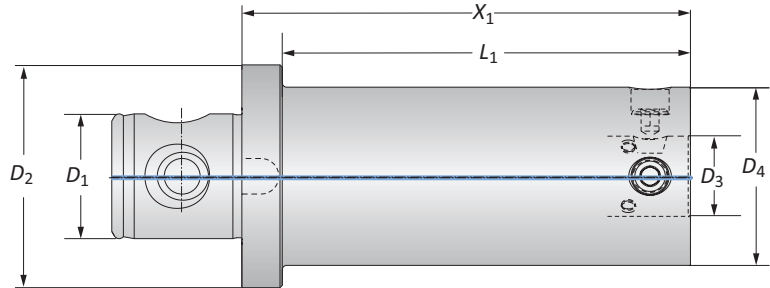
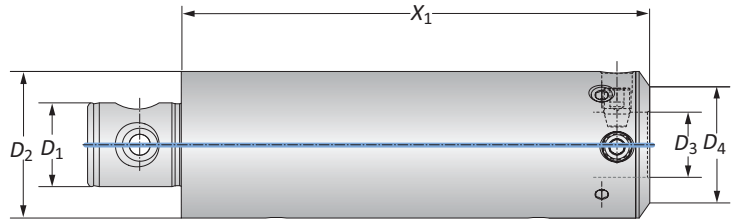
When our customer was machining alloy steel to 9xD, the NOVI^{TECH} provided reliable machining, which achieved high surface quality (Ra = 32).

Wohlschlaeger NOVI^{TECH} with VarioBore precision boring head

Standard tool construction with steel extension

NOVI^{TECH}® Vibration Damping Intermediate Modules

Machining Diameter: 1.969" - 8.071" (50.00 mm - 205.00 mm)

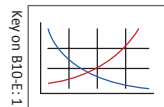


MVS Connection		NOVI ^{TECH}		Weight	Part No.
$D_2 D_1$	$D_4 D_3$	X_1	L_1		
50 - 28*	40 - 22	7.874	—	6.172 (lbs)	519002
63 - 36	50 - 28	7.874	—	12.560 (lbs)	519003
80 - 36	63 - 36	7.874	—	16.530 (lbs)	519004
80 - 36	80 - 36	7.874	—	16.530 (lbs)	519005
100 - 56	80 - 36	7.874	7.165	21.825 (lbs)	519006
50 - 28*	40 - 22	200.00	—	2.80 (kg)	519002
63 - 36	50 - 28	200.00	—	5.70 (kg)	519003
80 - 36	63 - 36	200.00	—	7.50 (kg)	519004
80 - 36	80 - 36	200.00	—	7.50 (kg)	519005
100 - 56	80 - 36	200.00	182.00	9.90 (kg)	519006

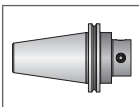
* D_2 = 49.50mm

NOTE: The NOVITECH intermediate module should always be assembled as close as possible to the cutting edge (i.e. the next component behind the boring head).

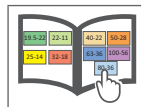
B10-M: 12-15



B10-F



B10: vi-vii



i = Imperial (in)
m = Metric (mm)

IMPORTANT: Max spindle speed refers to maximum possible speed for an individual boring head and is not a recommended parameter. Refer to page B10-M: 12 for recommended application-specific parameters. Factory technical assistance is available for your specific applications through our Application Engineering department.

ext: 7611 | email: appeng@alliedmachine.com

WARNING Exceeding weight capacity for machine tool spindle and tool changer can cause machine damage and/or serious injury. To prevent:

- Consult machine tool builder for machine's weight limitations.
- Refer to example on page B10-M: 11 for calculating tool assembly weight

Factory technical assistance is also available for specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

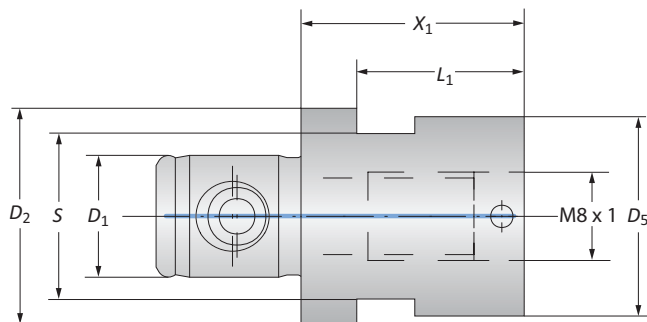
WARNING Tool failure can cause serious injury. To prevent:

- Do not exceed recommended 10xD length-to-diameter ratio or exceed 4 total components (including shank)
- When using Alu-Line components, do not exceed recommended 5xD length-to-diameter ratio
- When using tool steel components, do not exceed recommended 6xD length-to-diameter ratio
- When using heavy metal components, do not exceed recommended 8xD length-to-diameter ratio
- When using a carbide shank, do not exceed recommended 9xD length-to-diameter ratio
- When using a NOVITECH module, do not exceed recommended 10xD length-to-diameter ratio
- Refer to examples on pages B10-M: 8-10 for calculating length-to-diameter ratio

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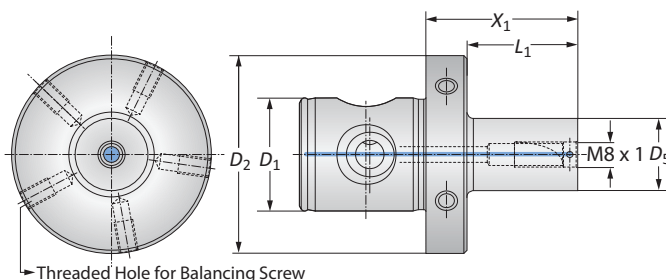
249 (248) Adapters

Adapters | Balanced Adapters



Adapters

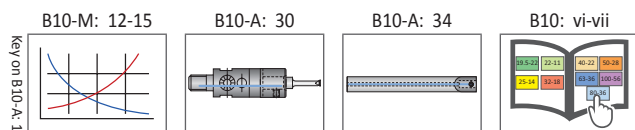
	MVS Connection	Boring Connection	Adapter				Weight	Service Key	Part No.
	$D_2 D_1$		X_1	L_1	S	D_5			
i	19.5 - 11	M8 x 1	0.787	0.590	15/P	0.708	0.110 (lbs)	15 S / P	219168
	23 - 11	M8 x 1	0.787	–	19/P	0.905	0.154 (lbs)	19 S / P	219169
m	19.5 - 11	M8 x 1	20.00	15.00	15/P	18.00	0.05 (kg)	15 S / P	219168
	23 - 11	M8 x 1	20.00	–	19/P	23.00	0.07 (kg)	19 S / P	219169



Balanced Adapters

	MVS Connection	Boring Connection	Adapter			Weight	Balancing Screw	Part No.
	$D_2 D_1$		X_1	L_1	D_5			
i	50 - 28	M8 x 1	1.259	0.748	0.590	0.771 (lbs)	M6 x 1 x 10	219185
	50 - 28	M8 x 1	1.890	1.377	0.708	0.881 (lbs)	M6 x 1 x 10	219176
	50 - 28	M8 x 1	1.890	1.377	0.905	0.992 (lbs)	M6 x 1 x 10	219177
m	50 - 28	M8 x 1	32.00	19.00	15.00	0.35 (kg)	M6 x 1 x 10	219185
	50 - 28	M8 x 1	48.00	35.00	18.00	0.40 (kg)	M6 x 1 x 10	219176
	50 - 28	M8 x 1	48.00	35.00	23.00	0.45 (kg)	M6 x 1 x 10	219177

NOTE: Balance refers to a specific residual imbalance of ≤ 10 g mm/kg



i = Imperial (in)
m = Metric (mm)

IMPORTANT: Max spindle speed refers to maximum possible speed for an individual boring head and is not a recommended parameter. Refer to page B10-M: 12 for recommended application-specific parameters. Factory technical assistance is available for your specific applications through our Application Engineering department.
ext: 7611 | email: appeng@alliedmachine.com

WARNING Exceeding weight capacity for machine tool spindle and tool changer can cause machine damage and/or serious injury. To prevent:

- Consult machine tool builder for machine's weight limitations.
- Refer to example on page B10-M: 11 for calculating tool assembly weight

Factory technical assistance is also available for specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

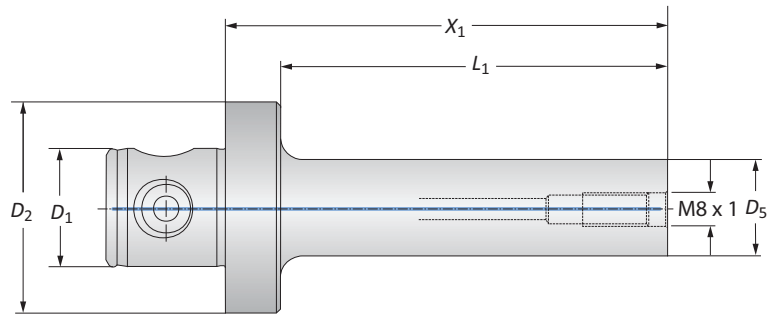
WARNING Tool failure can cause serious injury. To prevent:

- Do not exceed recommended 10xD length-to-diameter ratio or exceed 4 total components (including shank)
- When using Alu-Line components, do not exceed recommended 5xD length-to-diameter ratio
- When using tool steel components, do not exceed recommended 6xD length-to-diameter ratio
- When using heavy metal components, do not exceed recommended 8xD length-to-diameter ratio
- When using a carbide shank, do not exceed recommended 9xD length-to-diameter ratio
- When using a NOVI^{TECH} module, do not exceed recommended 10xD length-to-diameter ratio
- Refer to examples on pages B10-M: 8-10 for calculating length-to-diameter ratio

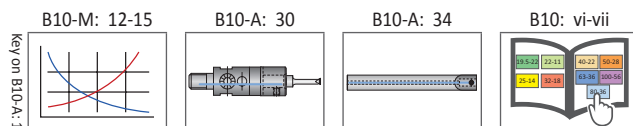
Factory technical assistance is available for your specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

249 (248) Adapters

Vibration Reducing Heavy Metal Adapters



	MVS Connection		Adapter			Weight	Part No.
	D_2 D_1	Boring Connection	X_1	L_1	D_5		
i	50 - 28	M8 x 1	2.677	2.165	0.590	1.763 (lbs)	248147
	50 - 28	M8 x 1	3.307	2.795	0.748	2.204 (lbs)	248148
	50 - 28	M8 x 1	4.094	3.582	0.905	2.866 (lbs)	248149
m	50 - 28	M8 x 1	68.00	55.00	15.00	0.80 (kg)	248147
	50 - 28	M8 x 1	84.00	71.00	19.00	1.00 (kg)	248148
	50 - 28	M8 x 1	104.00	91.00	23.00	1.30 (kg)	248149



i = Imperial (in)
m = Metric (mm)

IMPORTANT: Max spindle speed refers to maximum possible speed for an individual boring head and is not a recommended parameter. Refer to page B10-M: 12 for recommended application-specific parameters. Factory technical assistance is available for your specific applications through our Application Engineering department.
ext: 7611 | email: appeng@alliedmachine.com

WARNING Exceeding weight capacity for machine tool spindle and tool changer can cause machine damage and/or serious injury. To prevent:

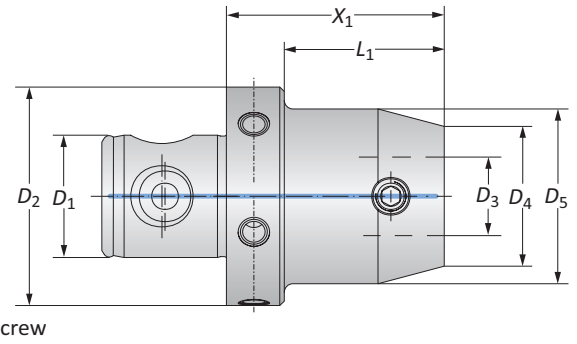
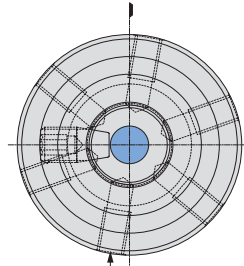
-Consult machine tool builder for machine's weight limitations.
-Refer to example on page B10-M: 11 for calculating tool assembly weight
Factory technical assistance is also available for specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

WARNING Tool failure can cause serious injury. To prevent:

-Do not exceed recommended 10xD length-to-diameter ratio or exceed 4 total components (including shank)
-When using Alu-Line components, do not exceed recommended 5xD length-to-diameter ratio
-When using tool steel components, do not exceed recommended 6xD length-to-diameter ratio
-When using heavy metal components, do not exceed recommended 8xD length-to-diameter ratio
-When using a carbide shank, do not exceed recommended 9xD length-to-diameter ratio
-When using a NOVI^{TECH} module, do not exceed recommended 10xD length-to-diameter ratio
-Refer to examples on pages B10-M: 8-10 for calculating length-to-diameter ratio
Factory technical assistance is available for your specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

Reducers

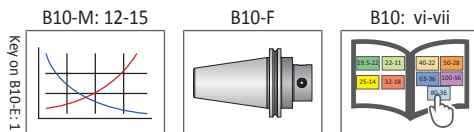
Imperial | Balanced



MVS Connection		Reducer				Weight	Balancing Screw	Part No.
$D_2 D_1$	$D_4 D_3$	X_1	L_1	D_5				
25 - 14	19.5 - 11	1.181	0.827	—	0.220 (lbs)	—	—	219034
25 - 14	22 - 11	1.181	0.827	—	0.440 (lbs)	—	—	219035
32 - 18	22 - 11	0.472	0.020	—	0.220 (lbs)	—	—	219036
32 - 18	25 - 14	1.181	0.827	—	0.220 (lbs)	—	—	219037
40 - 22	22 - 11	0.472	0.020	—	0.440 (lbs)	—	—	219038
40 - 22	25 - 14	1.181	0.827	—	0.440 (lbs)	—	—	219039
40 - 22	32 - 18	1.181	—	1.575	1.102 (lbs)	—	—	219040
50 - 28	19.5 - 11	2.126	1.614	—	0.881 (lbs)	M6 x 1 x 10	—	219051
50 - 28	22 - 11	0.551	0.020	—	0.661 (lbs)	M6 x 1 x 10	—	219041
50 - 28	22 - 11	2.126	1.614	—	0.881 (lbs)	M6 x 1 x 10	—	219052
50 - 28	25 - 14	0.551	0.020	—	0.661 (lbs)	M6 x 1 x 7	—	119094
50 - 28	25 - 14	2.323	1.811	—	0.881 (lbs)	M6 x 1 x 10	—	119054
50 - 28	25 - 14	2.323	1.811	1.260	1.102 (lbs)	M6 x 1 x 10	—	119055
50 - 28	25 - 14	4.685	4.173	1.260	1.984 (lbs)	M6 x 1 x 10	—	119010
50 - 28	25 - 14	4.685	4.173	1.417	2.204 (lbs)	M6 x 1 x 10	—	219030*
50 - 28	32 - 18	1.929	1.417	1.378	1.984 (lbs)	M6 x 1 x 10	—	219085
50 - 28	32 - 18	4.291	3.780	1.378	2.204 (lbs)	M6 x 1 x 10	—	219086
50 - 28	32 - 18	4.291	3.780	1.575	2.425 (lbs)	M6 x 1 x 10	—	119012
50 - 28	32 - 18	4.291	3.780	1.811	2.866 (lbs)	M6 x 1 x 10	—	219032*
50 - 28	40 - 22	1.575	1.063	—	1.102 (lbs)	M6 x 1 x 10	—	219087
50 - 28	40 - 22	3.937	3.425	1.850	2.866 (lbs)	M6 x 1 x 10	—	219088
50 - 28	63 - 36	1.969	—	—	2.204 (lbs)	M6 x 1 x 10	—	119059

*Reinforced reducer

NOTE: Balance refers to a specific residual imbalance of ≤ 10 g mm/kg



i = Imperial (in)
m = Metric (mm)

IMPORTANT: Max spindle speed refers to maximum possible speed for an individual boring head and is not a recommended parameter. Refer to page B10-M: 12 for recommended application-specific parameters. Factory technical assistance is available for your specific applications through our Application Engineering department.
ext: 7611 | email: appeng@alliedmachine.com

WARNING Exceeding weight capacity for machine tool spindle and tool changer can cause machine damage and/or serious injury. To prevent:

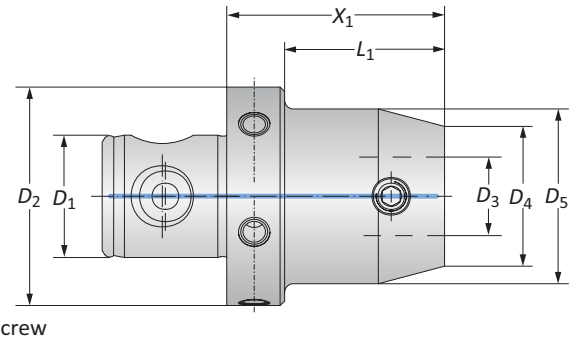
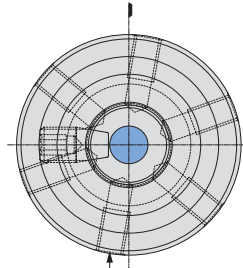
-Consult machine tool builder for machine's weight limitations.
-Refer to example on page B10-M: 11 for calculating tool assembly weight
Factory technical assistance is also available for specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

WARNING Tool failure can cause serious injury. To prevent:

-Do not exceed recommended 10xD length-to-diameter ratio or exceed 4 total components (including shank)
-When using Alu-Line components, do not exceed recommended 5xD length-to-diameter ratio
-When using tool steel components, do not exceed recommended 6xD length-to-diameter ratio
-When using heavy metal components, do not exceed recommended 8xD length-to-diameter ratio
-When using a carbide shank, do not exceed recommended 9xD length-to-diameter ratio
-When using a NOVI^{TECH} module, do not exceed recommended 10xD length-to-diameter ratio
-Refer to examples on pages B10-M: 8-10 for calculating length-to-diameter ratio
Factory technical assistance is available for your specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

Reducers

Metric | Balanced

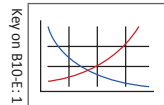


MVS Connection		Reducer			Weight	Balancing Screw	Part No.
$D_2 D_1$	$D_4 D_3$	X_1	L_1	D_5			
25 - 14	19.5 - 11	30.00	21.00	—	0.10 (kg)	—	219034
25 - 14	22 - 11	30.00	21.00	—	0.20 (kg)	—	219035
32 - 18	22 - 11	12.00	0.50	—	0.10 (kg)	—	219036
32 - 18	25 - 14	30.00	21.00	—	0.10 (kg)	—	219037
40 - 22	22 - 11	12.00	0.50	—	0.20 (kg)	—	219038
40 - 22	25 - 14	30.00	21.00	—	0.20 (kg)	—	219039
40 - 22	32 - 18	30.00	—	40.00	0.50 (kg)	—	219040
50 - 28	19.5 - 11	54.00	41.00	—	0.40 (kg)	M6 x 1 x 10	219051
50 - 28	22 - 11	14.00	0.50	—	0.30 (kg)	M6 x 1 x 10	219041
50 - 28	22 - 11	54.00	41.00	—	0.40 (kg)	M6 x 1 x 10	219052
50 - 28	25 - 14	14.00	0.50	—	0.30 (kg)	M6 x 1 x 7	119094
50 - 28	25 - 14	59.00	46.00	—	0.40 (kg)	M6 x 1 x 10	119054
50 - 28	25 - 14	59.00	46.00	32.00	0.50 (kg)	M6 x 1 x 10	119055
50 - 28	25 - 14	119.00	106.00	32.00	0.90 (kg)	M6 x 1 x 10	119010
50 - 28	25 - 14	119.00	106.00	36.00	1.00 (kg)	M6 x 1 x 10	219030*
50 - 28	32 - 18	49.00	36.00	35.00	0.90 (kg)	M6 x 1 x 10	219085
50 - 28	32 - 18	109.00	96.00	35.00	1.00 (kg)	M6 x 1 x 10	219086
50 - 28	32 - 18	109.00	96.00	40.00	1.10 (kg)	M6 x 1 x 10	119012
50 - 28	32 - 18	109.00	96.00	46.00	1.30 (kg)	M6 x 1 x 10	219032*
50 - 28	40 - 22	40.00	27.00	—	0.50 (kg)	M6 x 1 x 10	219087
50 - 28	40 - 22	100.00	87.00	47.00	1.30 (kg)	M6 x 1 x 10	219088
50 - 28	63 - 36	50.00	—	—	1.00 (kg)	M6 x 1 x 10	119059

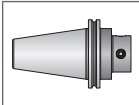
*Reinforced reducer

NOTE: Balance refers to a specific residual imbalance of $\leq 10 \text{ g mm/kg}$

B10-M: 12-15



B10-F



B10: vi-vii


i = Imperial (in)
m = Metric (mm)

IMPORTANT: Max spindle speed refers to maximum possible speed for an individual boring head and is not a recommended parameter. Refer to page B10-M: 12 for recommended application-specific parameters. Factory technical assistance is available for your specific applications through our Application Engineering department.
ext: 7611 | email: appeng@alliedmachine.com

WARNING Exceeding weight capacity for machine tool spindle and tool changer can cause machine damage and/or serious injury. To prevent:

-Consult machine tool builder for machine's weight limitations.

-Refer to example on page B10-M: 11 for calculating tool assembly weight

Factory technical assistance is also available for specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

WARNING Tool failure can cause serious injury. To prevent:

-Do not exceed recommended 10xD length-to-diameter ratio or exceed 4 total components (including shank)

-When using Alu-Line components, do not exceed recommended 5xD length-to-diameter ratio

-When using tool steel components, do not exceed recommended 6xD length-to-diameter ratio

-When using heavy metal components, do not exceed recommended 8xD length-to-diameter ratio

-When using a carbide shank, do not exceed recommended 9xD length-to-diameter ratio

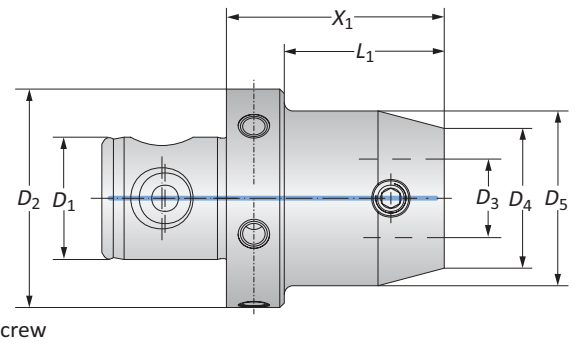
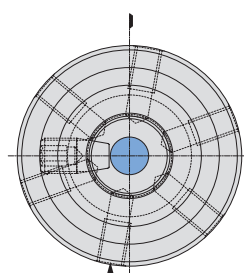
-When using a NOVI^{TECH} module, do not exceed recommended 10xD length-to-diameter ratio

-Refer to examples on pages B10-M: 8-10 for calculating length-to-diameter ratio

Factory technical assistance is available for your specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

Reducers

Imperial | Balanced

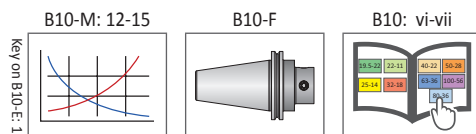


MVS Connection		Reducer			Weight	Balancing Screw	Part No.
$D_2 D_1$	$D_4 D_3$	X_1	L_1	D_5			
63 - 36	19.5 - 11	2.126	1.614	—	1.322 (lbs)	M6 x 1 x 10	219053
63 - 36	22 - 11	0.551	0.020	—	1.322 (lbs)	M6 x 1 x 10	219042
63 - 36	22 - 11	2.126	1.614	—	1.543 (lbs)	M6 x 1 x 10	219054
63 - 36	25 - 14	0.551	0.020	—	1.322 (lbs)	M6 x 1 x 10	119095
63 - 36	25 - 14	2.323	1.811	—	1.543 (lbs)	M6 x 1 x 10	119060
63 - 36	25 - 14	2.323	1.811	1.260	1.763 (lbs)	M6 x 1 x 10	119061
63 - 36	25 - 14	4.685	4.173	1.260	2.425 (lbs)	M6 x 1 x 15	119019
63 - 36	25 - 14	4.685	4.173	1.417	2.866 (lbs)	M6 x 1 x 10	219031*
63 - 36	32 - 18	1.929	1.417	1.378	1.543 (lbs)	M6 x 1 x 10	219089
63 - 36	32 - 18	4.291	3.780	1.378	2.645 (lbs)	M6 x 1 x 10	219090
63 - 36	32 - 18	4.291	3.780	1.575	3.086 (lbs)	M6 x 1 x 10	119021
63 - 36	32 - 18	4.291	3.780	1.811	3.527 (lbs)	M6 x 1 x 10	219033*
63 - 36	40 - 22	1.575	1.063	—	1.763 (lbs)	M6 x 1 x 10	219091
63 - 36	40 - 22	3.937	3.425	1.850	3.527 (lbs)	M6 x 1 x 15	219092
63 - 36	40 - 22	5.906	5.394	1.969	5.291 (lbs)	M6 x 1 x 15	119067
63 - 36	50 - 28	1.575	—	2.480	2.204 (lbs)	M6 x 1 x 10	119064
63 - 36	50 - 28	1.575	1.063	—	1.763 (lbs)	M6 x 1 x 10	119096**
63 - 36	50 - 28	3.937	—	2.480	5.291 (lbs)	M6 x 1 x 15	119025
63 - 36	50 - 28	3.937	3.425	—	3.747 (lbs)	M6 x 1 x 10	119097**
80 - 36	63 - 36	1.969	—	3.150	3.527 (lbs)	M6 x 1 x 15	119098
100 - 56	80 - 36	2.756	2.047	—	7.936 (lbs)	M8 x 1.25 x 20	219066

* Reinforced reducer

**For milling applications

NOTE: Balance refers to a specific residual imbalance of ≤ 10 g mm/kg



i = Imperial (in)
m = Metric (mm)

IMPORTANT: Max spindle speed refers to maximum possible speed for an individual boring head and is not a recommended parameter. Refer to page B10-M: 12 for recommended application-specific parameters. Factory technical assistance is available for your specific applications through our Application Engineering department.

ext: 7611 | email: appeng@alliedmachine.com

1. WARNING Exceeding weight capacity for machine tool spindle and tool changer can cause machine damage and/or serious injury. To prevent:

-Do not exceed recommended 10xD length-to-diameter ratio or exceed 4 total components (including shank)

-When using Alu-Line components, do not exceed recommended 5xD length-to-diameter ratio

-When using tool steel components, do not exceed recommended 6xD length-to-diameter ratio

-When using heavy metal components, do not exceed recommended 8xD length-to-diameter ratio

-When using a carbide shank, do not exceed recommended 9xD length-to-diameter ratio

-When using a NOVI^{TECH} module, do not exceed recommended 10xD length-to-diameter ratio

-Refer to examples on pages B10-M: 8-10 for calculating length-to-diameter ratio

Factory technical assistance is available for your specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

1. WARNING Tool failure can cause serious injury. To prevent:

-Do not exceed recommended 10xD length-to-diameter ratio or exceed 4 total components (including shank)

-When using Alu-Line components, do not exceed recommended 5xD length-to-diameter ratio

-When using tool steel components, do not exceed recommended 6xD length-to-diameter ratio

-When using heavy metal components, do not exceed recommended 8xD length-to-diameter ratio

-When using a carbide shank, do not exceed recommended 9xD length-to-diameter ratio

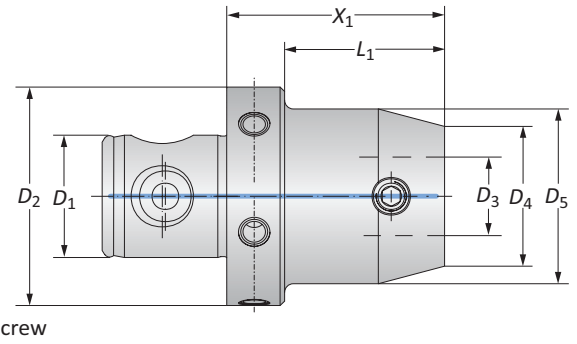
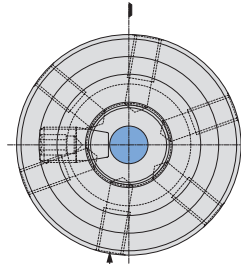
-When using a NOVI^{TECH} module, do not exceed recommended 10xD length-to-diameter ratio

-Refer to examples on pages B10-M: 8-10 for calculating length-to-diameter ratio

Factory technical assistance is available for your specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

Reducers

Metric | Balanced



MVS Connection		Reducer			Weight	Balancing Screw	Part No.
$D_2 D_1$	$D_4 D_3$	X_1	L_1	D_5			
63 - 36	19.5 - 11	54.00	41.00	—	0.60 (kg)	M6 x 1 x 10	219053
63 - 36	22 - 11	14.00	0.50	—	0.60 (kg)	M6 x 1 x 10	219042
63 - 36	22 - 11	54.00	41.00	—	0.70 (kg)	M6 x 1 x 10	219054
63 - 36	25 - 14	14.00	0.50	—	0.60 (kg)	M6 x 1 x 10	119095
63 - 36	25 - 14	59.00	46.00	—	0.70 (kg)	M6 x 1 x 10	119060
63 - 36	25 - 14	59.00	46.00	32.00	0.80 (kg)	M6 x 1 x 10	119061
63 - 36	25 - 14	119.00	106.00	32.00	1.10 (kg)	M6 x 1 x 15	119019
63 - 36	25 - 14	119.00	106.00	36.00	1.30 (kg)	M6 x 1 x 10	219031*
63 - 36	32 - 18	49.00	36.00	35.00	0.70 (kg)	M6 x 1 x 10	219089
63 - 36	32 - 18	109.00	96.00	35.00	1.20 (kg)	M6 x 1 x 10	219090
63 - 36	32 - 18	109.00	96.00	40.00	1.40 (kg)	M6 x 1 x 10	119021
63 - 36	32 - 18	109.00	96.00	46.00	1.60 (kg)	M6 x 1 x 10	219033*
63 - 36	40 - 22	40.00	27.00	—	0.80 (kg)	M6 x 1 x 10	219091
63 - 36	40 - 22	100.00	87.00	47.00	1.60 (kg)	M6 x 1 x 15	219092
63 - 36	40 - 22	150.00	137.00	50.00	2.40 (kg)	M6 x 1 x 15	119067
63 - 36	50 - 28	40.00	—	63.00	1.00 (kg)	M6 x 1 x 10	119064
63 - 36	50 - 28	40.00	27.00	—	0.80 (kg)	M6 x 1 x 10	119096**
63 - 36	50 - 28	100.00	—	63.00	2.40 (kg)	M6 x 1 x 15	119025
63 - 36	50 - 28	100.00	87.00	—	1.70 (kg)	M6 x 1 x 10	119097**
80 - 36	63 - 36	50.00	—	80.00	1.60 (kg)	M6 x 1 x 15	119098
100 - 56	80 - 36	70.00	52.00	—	3.60 (kg)	M8 x 1.25 x 20	219066

* Reinforced reducer

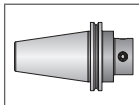
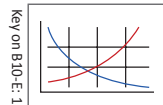
**For milling applications

NOTE: Balance refers to a specific residual imbalance of ≤ 10 g mm/kg

B10-M: 12-15

B10-F

B10: vi-vii


i = Imperial (in)
m = Metric (mm)

IMPORTANT: Max spindle speed refers to maximum possible speed for an individual boring head and is not a recommended parameter. Refer to page B10-M: 12 for recommended application-specific parameters. Factory technical assistance is available for your specific applications through our Application Engineering department.

ext: 7611 | email: appeng@alliedmachine.com
WARNING Exceeding weight capacity for machine tool spindle and tool changer can cause machine damage and/or serious injury. To prevent:

-Do not exceed recommended 10xD length-to-diameter ratio or exceed 4 total components (including shank)

-Consult machine tool builder for machine's weight limitations.

-Refer to example on page B10-M: 11 for calculating tool assembly weight

Factory technical assistance is also available for specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com
WARNING Tool failure can cause serious injury. To prevent:

-Do not exceed recommended 10xD length-to-diameter ratio or exceed 4 total components (including shank)

-When using Alu-Line components, do not exceed recommended 5xD length-to-diameter ratio

-When using tool steel components, do not exceed recommended 6xD length-to-diameter ratio

-When using heavy metal components, do not exceed recommended 8xD length-to-diameter ratio

-When using a carbide shank, do not exceed recommended 9xD length-to-diameter ratio

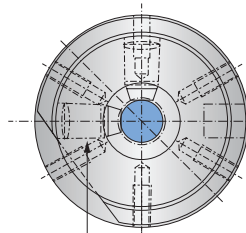
-When using a NOVI^{TECH} module, do not exceed recommended 10xD length-to-diameter ratio

-Refer to examples on pages B10-M: 8-10 for calculating length-to-diameter ratio

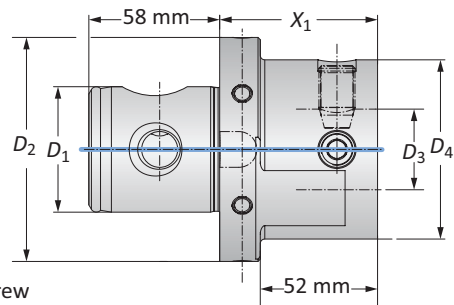
Factory technical assistance is available for your specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

Reducer

Balanced Alu-Line

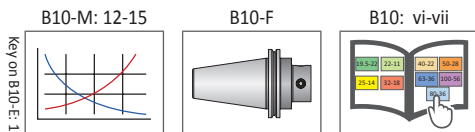


Balancing Screw



MVS Connection		Reducer		Weight	Balancing Screw	Part No.
$D_2 \mid D_1$	$D_4 \mid D_3$	X_1	L_1			
i 100 - 56	80 - 36	2.756	2.047	2.866 (lbs)	M8 x 1.25 x 20	319013
m 100 - 56	80 - 36	70.00	52.00	1.30 (kg)	M8 x 1.25 x 20	319013

NOTE: Balance refers to a specific residual imbalance of ≤ 10 g mm/kg



Key on B10-E: 1

i = Imperial (in)
m = Metric (mm)

IMPORTANT: Max spindle speed refers to maximum possible speed for an individual boring head and is not a recommended parameter. Refer to page B10-M: 12 for recommended application-specific parameters. Factory technical assistance is available for your specific applications through our Application Engineering department.
ext: 7611 | email: appeng@alliedmachine.com

WARNING Exceeding weight capacity for machine tool spindle and tool changer can cause machine damage and/or serious injury. To prevent:

- Do not exceed recommended 10xD length-to-diameter ratio or exceed 4 total components (including shank)
- When using Alu-Line components, do not exceed recommended 5xD length-to-diameter ratio
- When using tool steel components, do not exceed recommended 6xD length-to-diameter ratio
- When using heavy metal components, do not exceed recommended 8xD length-to-diameter ratio
- When using a carbide shank, do not exceed recommended 9xD length-to-diameter ratio
- When using a NOVI^{TECH} module, do not exceed recommended 10xD length-to-diameter ratio

Refer to examples on pages B10-M: 8-10 for calculating length-to-diameter ratio
Factory technical assistance is also available for specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

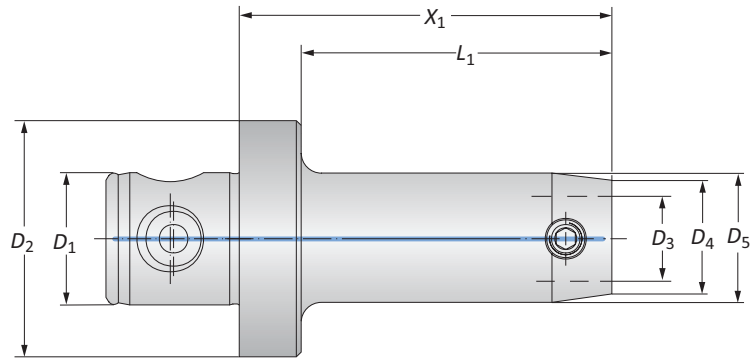
WARNING Tool failure can cause serious injury. To prevent:

- Do not exceed recommended 10xD length-to-diameter ratio or exceed 4 total components (including shank)
- When using Alu-Line components, do not exceed recommended 5xD length-to-diameter ratio
- When using tool steel components, do not exceed recommended 6xD length-to-diameter ratio
- When using heavy metal components, do not exceed recommended 8xD length-to-diameter ratio
- When using a carbide shank, do not exceed recommended 9xD length-to-diameter ratio
- When using a NOVI^{TECH} module, do not exceed recommended 10xD length-to-diameter ratio

Refer to examples on pages B10-M: 8-10 for calculating length-to-diameter ratio
Factory technical assistance is available for your specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

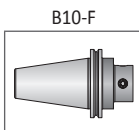
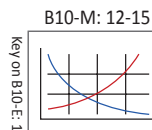
Heavy Metal Reducers

Vibration Reduction



MVS Connection		Heavy Metal Reducer			Weight	Part No.
$D_2 \mid D_1$	$D_4 \mid D_3$	X_1	L_1	D_5		
50 - 28	19.5 - 11	3.543	3.031	–	2.204 (lbs)	219055
50 - 28	22 - 11	4.331	3.819	0.906	2.866 (lbs)	219056
50 - 28	25 - 14	4.882	4.370	1.102	3.747 (lbs)	219057
i 50 - 28	25 - 14	5.669	5.157	1.260	5.070 (lbs)	219058
50 - 28	25 - 14	6.457	5.945	1.378	6.393 (lbs)	219059
50 - 28	32 - 18	6.063	5.551	1.457	6.393 (lbs)	219093
50 - 28	32 - 18	6.063	5.551	1.654	8.157 (lbs)	219060
50 - 28	19.5 - 11	90.00	77.00	–	1.00 (kg)	219055
50 - 28	22 - 11	110.00	97.00	23.00	1.30 (kg)	219056
50 - 28	25 - 14	124.00	111.00	28.00	1.70 (kg)	219057
m 50 - 28	25 - 14	144.00	131.00	32.00	2.30 (kg)	219058
50 - 28	25 - 14	164.00	151.00	35.00	2.90 (kg)	219059
50 - 28	32 - 18	154.00	141.00	37.00	2.90 (kg)	219093
50 - 28	32 - 18	154.00	141.00	42.00	3.70 (kg)	219060

NOTE: Heavy metal reducers are used to reduce vibration when machining deep boring applications. When using heavy metal reducers, the maximum cutting speed (V_c) is 200 m/min. If steel extensions are also used, reduce the cutting speed by 50% and use replaceable inserts where $r = 0.10\text{mm}$.



i = Imperial (in)
m = Metric (mm)

IMPORTANT: Max spindle speed refers to maximum possible speed for an individual boring head and is not a recommended parameter. Refer to page B10-M: 12 for recommended application-specific parameters. Factory technical assistance is available for your specific applications through our Application Engineering department.
ext: 7611 | email: appeng@alliedmachine.com

WARNING Exceeding weight capacity for machine tool spindle and tool changer can cause machine damage and/or serious injury. To prevent:

- Consult machine tool builder for machine's weight limitations.
- Refer to example on page B10-M: 11 for calculating tool assembly weight

Factory technical assistance is also available for specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

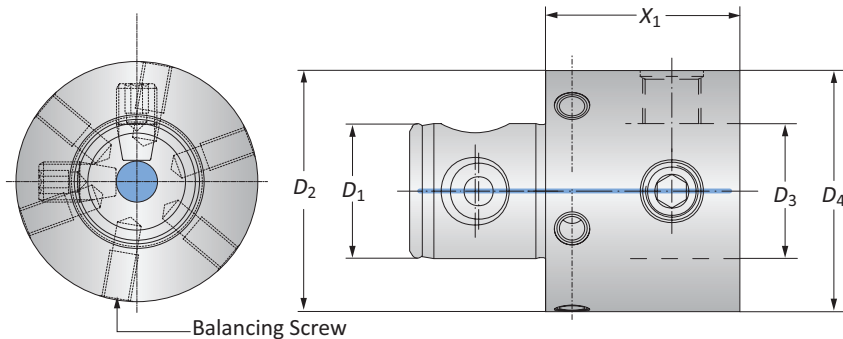
WARNING Tool failure can cause serious injury. To prevent:

- Do not exceed recommended 10xD length-to-diameter ratio or exceed 4 total components (including shank)
- When using Alu-Line components, do not exceed recommended 5xD length-to-diameter ratio
- When using tool steel components, do not exceed recommended 6xD length-to-diameter ratio
- When using heavy metal components, do not exceed recommended 8xD length-to-diameter ratio
- When using a carbide shank, do not exceed recommended 9xD length-to-diameter ratio
- When using a NOVI^{TECH} module, do not exceed recommended 10xD length-to-diameter ratio
- Refer to examples on pages B10-M: 8-10 for calculating length-to-diameter ratio

Factory technical assistance is available for your specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

Extensions

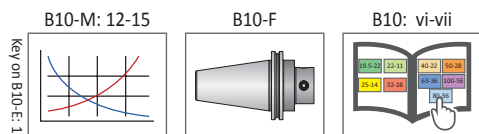
Imperial | Balanced



MVS Connection		Extension		Weight	Balancing Screw	Part No.
$D_2 D_1$	$D_4 D_3$	X_1				
19.5 - 11	19.5 - 11	1.575	0.220 (lbs)	—		219043
22 - 11	22 - 11	1.575	0.220 (lbs)	—		219044
25 - 14	25 - 14	0.984	0.220 (lbs)	—		219068
25 - 14	25 - 14	1.575	0.220 (lbs)	—		119001
32 - 18	32 - 18	1.575	0.440 (lbs)	—		119002
40 - 22	40 - 22	1.575	0.881 (lbs)	—		119003
50 - 28	50 - 28	1.575	1.322 (lbs)	M6 x 1 x 10		119004
50 - 28*	50 - 28*	2.953	2.425 (lbs)	M6 x 1 x 10		219097
50 - 28	50 - 28	2.953	2.425 (lbs)	M6 x 1 x 10		219082
50 - 28	50 - 28	3.937	3.306 (lbs)	M6 x 1 x 10		119058
63 - 36	63 - 36	1.969	2.425 (lbs)	M6 x 1 x 10		119005
63 - 36	63 - 36	2.953	3.747 (lbs)	M6 x 1 x 15		219083
63 - 36	63 - 36	4.921	6.393 (lbs)	M6 x 1 x 15		119065
80 - 36	80 - 36	1.969	4.188 (lbs)	M6 x 1 x 15		119006
80 - 36	80 - 36	2.953	6.172 (lbs)	M6 x 1 x 15		219084
80 - 36	80 - 36	4.921	10.580 (lbs)	M6 x 1 x 15		119066
80 - 36	80 - 36	7.874	16.310 (lbs)	M8 x 1.25 x 21		219094
80 - 36	80 - 36	10.827	22.260 (lbs)	M8 x 1.25 x 21		119069
100 - 56	100 - 56	2.953	9.479 (lbs)	M8 x 1.25 x 20		219095
100 - 56	100 - 56	3.937	12.340 (lbs)	M8 x 1.25 x 20		219061
100 - 56	100 - 56	5.906	17.850 (lbs)	M8 x 1.25 x 20		219096
100 - 56	100 - 56	7.874	22.480 (lbs)	M8 x 1.25 x 20		219062
100 - 56	100 - 56	11.811	32.180 (lbs)	M8 x 1.25 x 20		219063

* $D_2 / D_4 = 1.949$ " (49.50mm) for boring 1.969" (50.00mm) diameter applications

NOTE: Balance refers to a specific residual imbalance of ≤ 10 g mm/kg



i = Imperial (in)
m = Metric (mm)

IMPORTANT: Max spindle speed refers to maximum possible speed for an individual boring head and is not a recommended parameter. Refer to page B10-M: 12 for recommended application-specific parameters. Factory technical assistance is available for your specific applications through our Application Engineering department.

ext: 7611 | email: appeng@alliedmachine.com

1. WARNING Exceeding weight capacity for machine tool spindle and tool changer can cause machine damage and/or serious injury. To prevent:

- Consult machine tool builder for machine's weight limitations.
- Refer to example on page B10-M: 11 for calculating tool assembly weight

Factory technical assistance is also available for specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

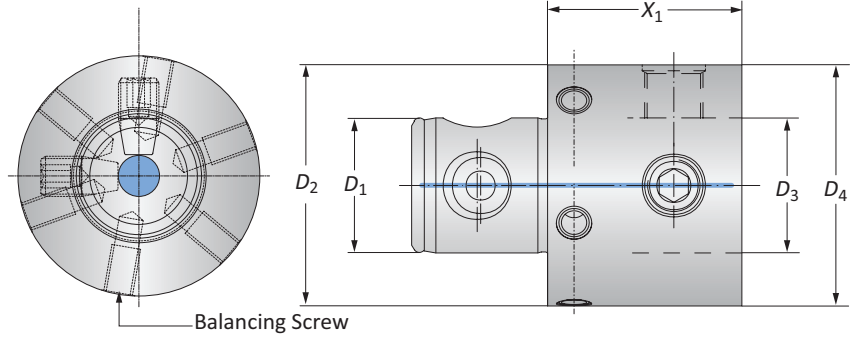
1. WARNING Tool failure can cause serious injury. To prevent:

- Do not exceed recommended 10xD length-to-diameter ratio or exceed 4 total components (including shank)
- When using Alu-Line components, do not exceed recommended 5xD length-to-diameter ratio
- When using tool steel components, do not exceed recommended 6xD length-to-diameter ratio
- When using heavy metal components, do not exceed recommended 8xD length-to-diameter ratio
- When using a carbide shank, do not exceed recommended 9xD length-to-diameter ratio
- When using a NOVI^{TECH} module, do not exceed recommended 10xD length-to-diameter ratio
- Refer to examples on pages B10-M: 8-10 for calculating length-to-diameter ratio

Factory technical assistance is available for your specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

Extensions

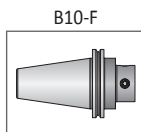
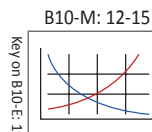
Metric | Balanced



MVS Connection		Extension	Weight	Balancing Screw	Part No.
$D_2 D_1$	$D_4 D_3$	X_1			
19.5 - 11	19.5 - 11	40.00	0.10 (kg)	–	219043
22 - 11	22 - 11	40.00	0.10 (kg)	–	219044
25 - 14	25 - 14	25.00	0.10 (kg)	–	219068
25 - 14	25 - 14	40.00	0.10 (kg)	–	119001
32 - 18	32 - 18	40.00	0.20 (kg)	–	119002
40 - 22	40 - 22	40.00	0.40 (kg)	–	119003
50 - 28	50 - 28	40.00	0.60 (kg)	M6 x 1 x 10	119004
50 - 28*	50 - 28*	75.00	1.10 (kg)	M6 x 1 x 10	219097
50 - 28	50 - 28	75.00	1.10 (kg)	M6 x 1 x 10	219082
50 - 28	50 - 28	100.00	1.50 (kg)	M6 x 1 x 10	119058
63 - 36	63 - 36	50.00	1.10 (kg)	M6 x 1 x 10	119005
63 - 36	63 - 36	75.00	1.70 (kg)	M6 x 1 x 15	219083
63 - 36	63 - 36	125.00	2.90 (kg)	M6 x 1 x 15	119065
80 - 36	80 - 36	50.00	1.90 (kg)	M6 x 1 x 15	119006
80 - 36	80 - 36	75.00	2.80 (kg)	M6 x 1 x 15	219084
80 - 36	80 - 36	125.00	4.80 (kg)	M6 x 1 x 15	119066
80 - 36	80 - 36	200.00	7.40 (kg)	M8 x 1.25 x 21	219094
80 - 36	80 - 36	275.00	10.10 (kg)	M8 x 1.25 x 21	119069
100 - 56	100 - 56	75.00	4.30 (kg)	M8 x 1.25 x 20	219095
100 - 56	100 - 56	100.00	5.60 (kg)	M8 x 1.25 x 20	219061
100 - 56	100 - 56	150.00	8.10 (kg)	M8 x 1.25 x 20	219096
100 - 56	100 - 56	200.00	10.20 (kg)	M8 x 1.25 x 20	219062
100 - 56	100 - 56	300.00	14.60 (kg)	M8 x 1.25 x 20	219063

* $D_2 / D_4 = 1.949"$ (49.50mm) for boring 1.969" (50.00mm) diameter applications

NOTE: Balance refers to a specific residual imbalance of ≤ 10 g mm/kg



Key on B10-E: 1

ⓘ = Imperial (in)
Ⓜ = Metric (mm)

IMPORTANT: Max spindle speed refers to maximum possible speed for an individual boring head and is not a recommended parameter. Refer to page B10-M: 12 for recommended application-specific parameters. Factory technical assistance is available for your specific applications through our Application Engineering department.

ext: 7611 | email: appeng@alliedmachine.com

WARNING Exceeding weight capacity for machine tool spindle and tool changer can cause machine damage and/or serious injury. To prevent:

-Consult machine tool builder for machine's weight limitations.

-Refer to example on page B10-M: 11 for calculating tool assembly weight

Factory technical assistance is also available for specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

WARNING Tool failure can cause serious injury. To prevent:

-Do not exceed recommended 10xD length-to-diameter ratio or exceed 4 total components (including shank)

-When using Alu-Line components, do not exceed recommended 5xD length-to-diameter ratio

-When using tool steel components, do not exceed recommended 6xD length-to-diameter ratio

-When using heavy metal components, do not exceed recommended 8xD length-to-diameter ratio

-When using a carbide shank, do not exceed recommended 9xD length-to-diameter ratio

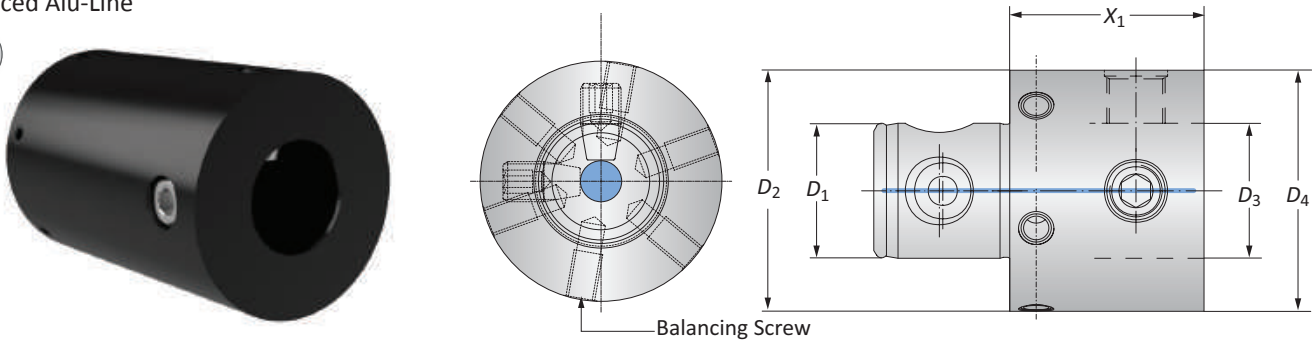
-When using a NOVI^{TECH} module, do not exceed recommended 10xD length-to-diameter ratio

-Refer to examples on pages B10-M: 8-10 for calculating length-to-diameter ratio

Factory technical assistance is available for your specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

Extensions

Balanced Alu-Line



MVS Connection		Modules		Weight	Balancing Screw	Part No.
$D_2 D_1$	$D_4 D_3$	X_1				
50 - 28	50 - 28	1.575		0.440 (lbs)	M6 x 1 x 8	319021
50 - 28	50 - 28	2.953		0.881 (lbs)	M6 x 1 x 10	319022
50 - 28	50 - 28	3.937		1.322 (lbs)	M6 x 1 x 10	319023
63 - 36	63 - 36	1.969		0.881 (lbs)	M6 x 1 x 8	319002
63 - 36	63 - 36	4.921		2.425 (lbs)	M6 x 1 x 10	319003
80 - 36	80 - 36	1.969		1.543 (lbs)	M6 x 1 x 10	319004
80 - 36	80 - 36	2.953		2.204 (lbs)	M6 x 1 x 10	319016
80 - 36	80 - 36	4.921		3.968 (lbs)	M6 x 1 x 10	319005
80 - 36	80 - 36	7.874		5.952 (lbs)	M6 x 1 x 10	319017
80 - 36	80 - 36	10.827		8.157 (lbs)	M6 x 1 x 10	319006
100 - 56	100 - 56	2.953		3.306 (lbs)	M8 x 1.25 x 20	319019
100 - 56	100 - 56	3.937		4.850 (lbs)	M8 x 1.25 x 20	319007
100 - 56	100 - 56	5.906		6.613 (lbs)	M8 x 1.25 x 20	319018
100 - 56	100 - 56	7.874		8.377 (lbs)	M8 x 1.25 x 20	319008
100 - 56	100 - 56	11.811		11.900 (lbs)	M8 x 1.25 x 20	319009
50 - 28	50 - 28	40.00		0.20 (kg)	M6 x 1 x 8	319021
50 - 28	50 - 28	75.00		0.40 (kg)	M6 x 1 x 10	319022
50 - 28	50 - 28	100.00		0.60 (kg)	M6 x 1 x 10	319023
63 - 36	63 - 36	50.00		0.40 (kg)	M6 x 1 x 8	319002
63 - 36	63 - 36	125.00		1.10 (kg)	M6 x 1 x 10	319003
80 - 36	80 - 36	50.00		0.70 (kg)	M6 x 1 x 10	319004
80 - 36	80 - 36	75.00		1.00 (kg)	M6 x 1 x 10	319016
80 - 36	80 - 36	125.00		1.80 (kg)	M6 x 1 x 10	319005
80 - 36	80 - 36	200.00		2.70 (kg)	M6 x 1 x 10	319017
80 - 36	80 - 36	275.00		3.70 (kg)	M6 x 1 x 10	319006
100 - 56	100 - 56	75.00		1.50 (kg)	M8 x 1.25 x 20	319019
100 - 56	100 - 56	100.00		2.20 (kg)	M8 x 1.25 x 20	319007
100 - 56	100 - 56	150.00		3.00 (kg)	M8 x 1.25 x 20	319018
100 - 56	100 - 56	200.00		3.80 (kg)	M8 x 1.25 x 20	319008
100 - 56	100 - 56	300.00		5.40 (kg)	M8 x 1.25 x 20	319009

NOTE: Balance refers to a specific residual imbalance of $\leq 10 \text{ g mm/kg}$

i = Imperial (in)
m = Metric (mm)

IMPORTANT: Max spindle speed refers to maximum possible speed for an individual boring head and is not a recommended parameter. Refer to page B10-M: 12 for recommended application-specific parameters. Factory technical assistance is available for your specific applications through our Application Engineering department.
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1. WARNING Exceeding weight capacity for machine tool spindle and tool changer can cause machine damage and/or serious injury. To prevent:

-Consult machine tool builder for machine's weight limitations.
-Refer to example on page B10-M: 11 for calculating tool assembly weight

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1. WARNING Tool failure can cause serious injury. To prevent:

-Do not exceed recommended 10xD length-to-diameter ratio or exceed 4 total components (including shank)
-When using Alu-Line components, do not exceed recommended 5xD length-to-diameter ratio
-When using tool steel components, do not exceed recommended 6xD length-to-diameter ratio
-When using heavy metal components, do not exceed recommended 8xD length-to-diameter ratio
-When using a carbide shank, do not exceed recommended 9xD length-to-diameter ratio
-When using a NOVI^{TECH} module, do not exceed recommended 10xD length-to-diameter ratio
-Refer to examples on pages B10-M: 8-10 for calculating length-to-diameter ratio

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