



**ALLIED MACHINE
& ENGINEERING**

Holemaking Solutions for Today's Manufacturing



Drilling



Reaming



Burnishing



Threading



Wohlhaupter[®]

▶ **BORING**

Lay Down Cartridges



Specials

WOHLHAUPTER[®]

SECTION

B10-L

Lay Down Cartridges

Wohlhaupter® Lay Down Cartridges

ES-Bore Fine Boring Holders | Holders for Pre-Machining | Holders for Compact Boring Bars | Short Clamp Holders



Robust. Powerful. Versatile. Engineered Solutions.

ES-Bore lay down cartridges can be easily mounted onto the body of a custom tool, while the dimensions allow the cartridge to fit onto existing bodies. Wohlhaupter's fine boring ES-Bore cartridges are available in both digital 3E^{TECH+} and analog versions to make quick and accurate adjustments while at the machine.

From pre-machining holes with heavy stock removal to finish machining with tight tolerances and excellent surface finish, Wohlhaupter's extensive range of lay down cartridges can help you achieve specific boring solutions. Wohlhaupter's lay down cartridges bring innovative concepts designed to improve productivity, reduce scrap, and reduce the cost per part.

Applicable Industries



Aerospace



Agriculture



Automotive



Firearms



General
Machining



Oil & Gas



Renewable
Energy

Your safety and the safety of others is very important. This catalog contains important safety messages. Always read and follow all safety precautions.



This triangle is a safety hazard symbol. It alerts you to potential safety hazards that can cause tool failure and serious injury.

When you see this symbol in the catalog, look for a related safety message that may be near this triangle or referred to in the nearby text.

There are safety signal words also used in the catalog. Safety messages follow these words.

WARNING

WARNING (shown above) means that failure to follow the precautions in this message could result in tool failure and serious injury.

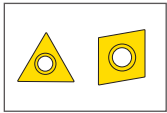
NOTICE means that failure to follow the precautions in this message could result in damage to the tool or machine but not result in personal injury.

NOTE and **IMPORTANT** are also used. These are important that you read and follow but are not safety-related.

Visit www.alliedmachine.com for the most up-to-date information and procedures.

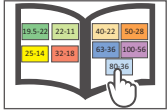
Reference Icons

The following icons will appear throughout the catalog to help you navigate between products.



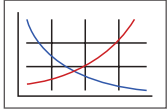
Inserts

For use with insert holder boring heads and boring bars using indexable inserts



MVS Connection Color Guide

Detailed instructions and information regarding the MVS connection(s)



Recommended Cutting Data

Speed and feed recommendations for optimum and safe boring

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ES-Bore Lay Down Cartridges

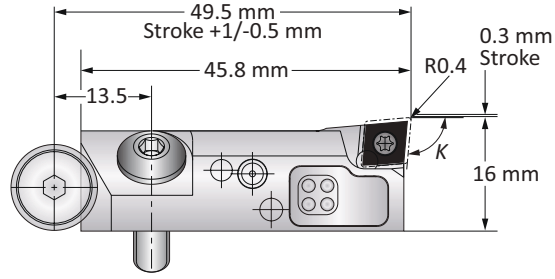
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Compact Lay Down Cartridges

Insert Forms 101, 103, 104 and 105.	6
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ES-Bore Digital 3E^{TECH+} Fine Boring Cartridges | Insert Forms 101 and 20

Diameter Range: ≥1.102" (28.00 mm)



Holder Type	K	ISO	Minimum Boring Diameter	Type	Insert Form	Weight	Part No.
	90°	CC.. 0602..	1.102	Right	101	0.132 (lbs)	345032
	90°	CC.. 0602..	1.102	Left	101	0.132 (lbs)	345033
	90°	TOGX 0802..	1.102	Right	20	0.132 (lbs)	345042
	90°	TOGX 0802..	1.102	Left	20	0.132 (lbs)	345043
	95°	CC.. 0602..	1.102	Right	101	0.132 (lbs)	345030
	95°	CC.. 0602..	1.102	Left	101	0.132 (lbs)	345031
	95°	TOGX 0802..	1.102	Right	20	0.132 (lbs)	345040
	95°	TOGX 0802..	1.102	Left	20	0.132 (lbs)	345041
	90°	CC.. 0602..	28.00	Right	101	0.06 (kg)	345032
	90°	CC.. 0602..	28.00	Left	101	0.06 (kg)	345033
	90°	TOGX 0802..	28.00	Right	20	0.06 (kg)	345042
	90°	TOGX 0802..	28.00	Left	20	0.06 (kg)	345043
	95°	CC.. 0602..	28.00	Right	101	0.06 (kg)	345030
	95°	CC.. 0602..	28.00	Left	101	0.06 (kg)	345031
	95°	TOGX 0802..	28.00	Right	20	0.06 (kg)	345040
	95°	TOGX 0802..	28.00	Left	20	0.06 (kg)	345041

NOTE: ES-Bore digital fine boring cartridges must be used with the new 3E^{TECH+} and adapter plate. The ES-Bore cannot be used with 3E^{TECH}.
NOTE: 3E^{TECH+} module, adapter, and charging unit sold separately.

3E^{TECH+} Digital Readout Module

Part No.	Charging Unit*
536015	536016



NOTE: WEEE-Reg.-Nr. DE 15820388
 *Charging unit sold separately.

NOTE: 3E^{TECH+} adjustment accuracy of 0.0001" or 0.001 mm on diameter.

Adapter Plate for 3E^{TECH+}

Type	Part No.
Right	536017
Left	536018



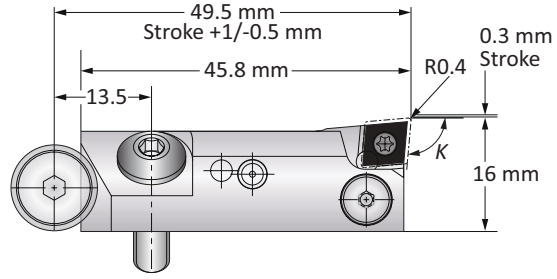
NOTE: Adapter sold separately.

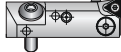



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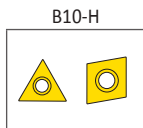
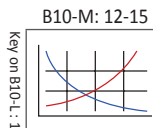
i = Imperial (in)
m = Metric (mm)
 Inserts sold separately

ES-Bore Analog Fine Boring Cartridges | Insert Forms 101 and 20

Diameter Range: $\geq 1.102''$ (28.00 mm)



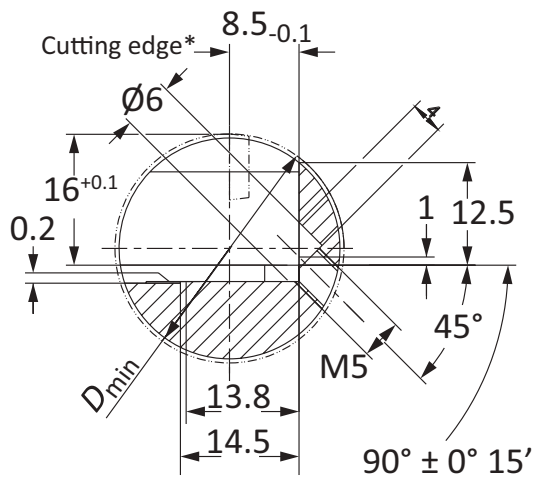
Holder Type	K	ISO	Minimum Boring Diameter	Type	Insert Form	Weight	Part No.
	90°	CC.. 0602..	1.102	Right	101	0.132 (lbs)	346036
	90°	CC.. 0602..	1.102	Left	101	0.132 (lbs)	346037
	90°	TOGX 0802..	1.102	Right	20	0.132 (lbs)	346046
	90°	TOGX 0802..	1.102	Left	20	0.132 (lbs)	346047
	95°	CC.. 0602..	1.102	Right	101	0.132 (lbs)	346034
	95°	CC.. 0602..	1.102	Left	101	0.132 (lbs)	346035
	95°	TOGX 0802..	1.102	Right	20	0.132 (lbs)	346044
	95°	TOGX 0802..	1.102	Left	20	0.132 (lbs)	346045
	90°	CC.. 0602..	28.00	Right	101	0.06 (kg)	345036
	90°	CC.. 0602..	28.00	Left	101	0.06 (kg)	345037
	90°	TOGX 0802..	28.00	Right	20	0.06 (kg)	345046
	90°	TOGX 0802..	28.00	Left	20	0.06 (kg)	345047
	95°	CC.. 0602..	28.00	Right	101	0.06 (kg)	345034
	95°	CC.. 0602..	28.00	Left	101	0.06 (kg)	345035
	95°	TOGX 0802..	28.00	Right	20	0.06 (kg)	345044
	95°	TOGX 0802..	28.00	Left	20	0.06 (kg)	345045



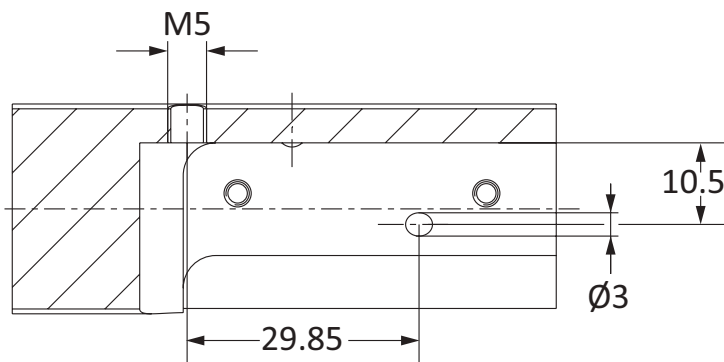
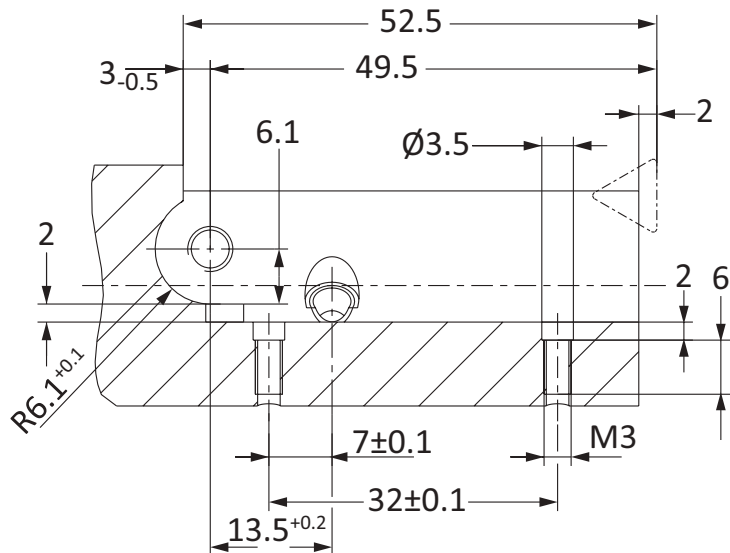
i = Imperial (in)
m = Metric (mm)
Inserts sold separately

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ES-Bore Mounting Dimensions

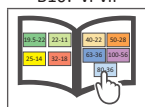
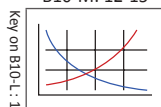


*For $D \leq 32$ mm cutting edge 1 mm before center



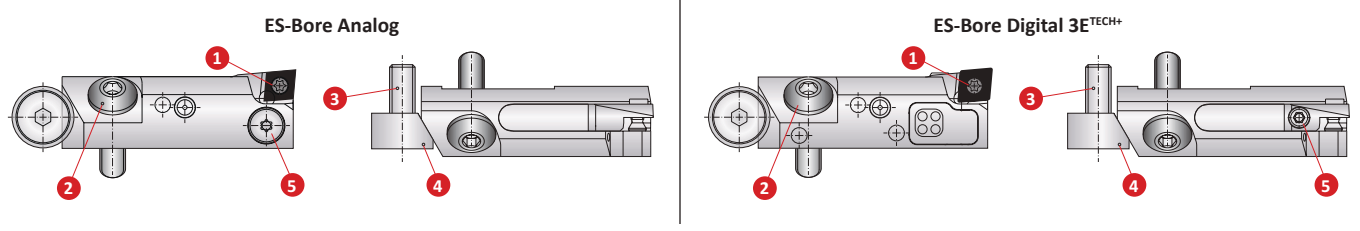
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ES-Bore Accessories

Screws | Service Keys | 3E^{TECH+} Accessories



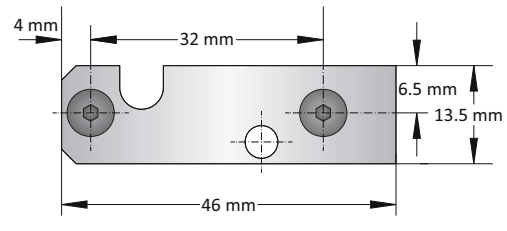
	1 Insert Screw		2	3	4	5
	Insert Form 101	Insert Form 20	Mounting Screw	Height Adjusting Screw	Height Adjusting Wedge	Diameter Adjusting Screw*
Screw	115676 (T8)	115535 (T7)	515632 (s3)	115466 (s3)	415721	-
Service Key	115590	115591	051110	051110	-	115590

*Diameter adjusting screw must not be removed from the fine boring cartridge.

ES-Bore Shim Assembly (Unfinished)

	Part No
Shim Assembly (Shim with 2 Screws)	345048
Replacement Screw	116438

NOTE: Shim can be used for both right-hand and left-hand cutting to achieve desired diameter for insert with alternative nose radius. Face grinding and screw hole countersinking will be required.



3E^{TECH+} Accessories

1 Charging Unit
Part No.
536016

NOTE: Charging unit sold separately from 3E^{TECH+}.



NOTE: 3E^{TECH+} adjustment accuracy of 0.0001" or 0.001 mm on diameter.

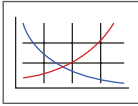
Adapter Plate for 3E^{TECH+}

Type	Part No.
Right	536017
Left	536018

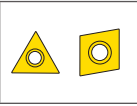
NOTE: Adapter sold separately.



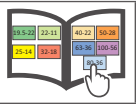
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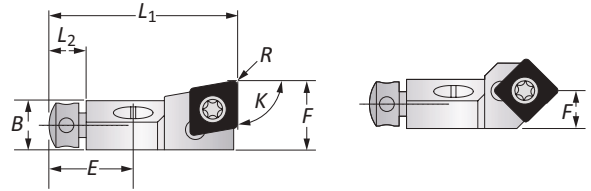
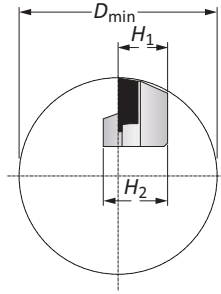
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Compact Lay Down Cartridges | Insert Forms 101, 103, 104 and 105

Diameter Range: ≥0.984" (25.00 mm)



Holder Type	K	ISO	D _{min} Boring Range	Designation	Insert Holder								Insert Form	Part No.
					L ₁	L ₂	B	H ₁	H ₂	F	R Radius	E		
	90°	CC..0602..	0.984	SCFCR08CK-06	1.102	0.236	0.255	0.314	0.393	0.393	0.015	0.511	101	345001
	90°	CC..09T3..	1.574	SCFCR10CK-09	1.496	0.295	0.393	0.393	0.511	0.551	0.031	0.669	103	345002
	90°	CC..1204..	1.968	SCFCR12CK-12	1.771	0.314	0.551	0.472	0.629	0.787	0.031	0.787	104	345003
	90°	CC..1605..	2.165	SCFCR14CK-16	2.125	0.314	0.629	0.551	0.708	0.905	0.031	0.925	105	345004
	80°	CC..0602..	0.984	SCOCR08CK-06	1.102	0.236	0.255	0.314	0.393	0.354	0.015	0.511	101	345014
	80°	CC..09T3..	1.574	SCOCR10CK-09	1.496	0.295	0.393	0.393	0.511	0.492	0.031	0.669	103	345009
	75°	CC..0602..	0.984	SCRCR08CK-06	1.102	0.236	0.255	0.314	0.393	0.334	0.015	0.511	101	345013
	75°	CC..09T3..	1.574	SCRCR10CK-09	1.496	0.295	0.393	0.393	0.511	0.460	0.031	0.669	103	345008
	70°	CC..0602..	0.984	SCPCR08CK-06	1.102	0.236	0.255	0.314	0.393	0.314	0.015	0.511	101	345012
	70°	CC..09T3..	1.574	SCPCR10CK-09	1.496	0.295	0.393	0.393	0.511	0.433	0.031	0.669	103	345007
	60°	CC..0602..	0.984	SCTCR08CK-06	1.102	0.236	0.255	0.314	0.393	0.275	0.015	0.511	101	345011
	60°	CC..09T3..	1.574	SCTCR10CK-09	1.496	0.295	0.393	0.393	0.511	0.381	0.031	0.669	103	345006
	45°	CC..0602..	0.984	SCSCR08CK-06	0.944	0.236	0.255	0.314	0.393	0.393	0.015	0.511	101	345010
	45°	CC..09T3..	1.574	SCSCR10CK-09	1.259	0.295	0.393	0.393	0.511	0.570	0.031	0.669	103	345005
	90°	CC..0602..	25.00	SCFCR08CK-06	28.00	6.00	6.50	8.00	10.00	10.00	0.40	13.00	101	345001
	90°	CC..09T3..	40.00	SCFCR10CK-09	38.00	7.50	10.00	10.00	13.00	14.00	0.80	17.00	103	345002
	90°	CC..1204..	50.00	SCFCR12CK-12	45.00	8.00	14.00	12.00	16.00	20.00	0.80	20.00	104	345003
	90°	CC..1605..	55.00	SCFCR14CK-16	54.00	8.00	16.00	14.00	18.00	23.00	0.80	23.50	105	345004
	80°	CC..0602..	25.00	SCOCR08CK-06	28.00	6.00	6.50	8.00	10.00	9.00	0.40	13.00	101	345014
	80°	CC..09T3..	40.00	SCOCR10CK-09	38.00	7.50	10.00	10.00	13.00	12.50	0.80	17.00	103	345009
	75°	CC..0602..	25.00	SCRCR08CK-06	28.00	6.00	6.50	8.00	10.00	8.50	0.40	13.00	101	345013
	75°	CC..09T3..	40.00	SCRCR10CK-09	38.00	7.50	10.00	10.00	13.00	11.70	0.80	17.00	103	345008
	70°	CC..0602..	25.00	SCPCR08CK-06	28.00	6.00	6.50	8.00	10.00	8.00	0.40	13.00	101	345012
	70°	CC..09T3..	40.00	SCPCR10CK-09	38.00	7.50	10.00	10.00	13.00	11.00	0.80	17.00	103	345007
	60°	CC..0602..	25.00	SCTCR08CK-06	28.00	6.00	6.50	8.00	10.00	7.00	0.40	13.00	101	345011
	60°	CC..09T3..	40.00	SCTCR10CK-09	38.00	7.50	10.00	10.00	13.00	9.70	0.80	17.00	103	345006
	45°	CC..0602..	25.00	SCSCR08CK-06	24.00	6.00	6.50	8.00	10.00	10.00	0.40	13.00	101	345010
	45°	CC..09T3..	40.00	SCSCR10CK-09	32.00	7.50	10.00	10.00	13.00	14.50	0.80	17.00	103	345005

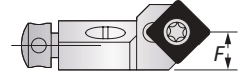
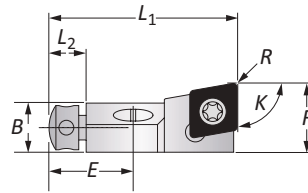
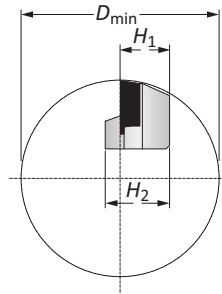
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Key on B10-L: 1

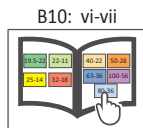
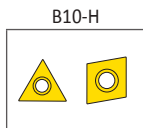
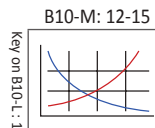
i = Imperial (in)
m = Metric (mm)
Inserts sold separately



Compact Lay Down Cartridges | Insert Form 112

Diameter Range: $\geq 1.574''$ (40.00 mm)



Holder Type	K	ISO	D _{min} Boring Range	Designation	Insert Holder								Insert Form	Part No.
					L ₁	L ₂	B	H ₁	H ₂	F	R Radius	E		
		SC..09T3..	1.574	SSOCR10CK-09	1.496	0.295	0.393	0.393	0.511	0.472	0.031	0.669	112	345019
		SC..09T3..	1.574	SSRCR10CK-09	1.496	0.295	0.393	0.393	0.511	0.460	0.031	0.669	112	345018
		SC..09T3..	1.574	SSPCR10CK-09	1.496	0.295	0.393	0.393	0.511	0.433	0.031	0.669	112	345017
		SC..09T3..	1.574	SSTCR10CK-09	1.496	0.295	0.393	0.393	0.511	0.381	0.031	0.669	112	345016
		SC..09T3..	1.574	SSSCR10CK-09	1.260	0.295	0.393	0.393	0.511	0.551	0.031	0.669	112	345015
		SC..09T3..	40.00	SSOCR10CK-09	38.00	7.50	10.00	10.00	13.00	12.50	0.80	17.00	112	345019
		SC..09T3..	40.00	SSRCR10CK-09	38.00	7.50	10.00	10.00	13.00	11.70	0.80	17.00	112	345018
		SC..09T3..	40.00	SSPCR10CK-09	38.00	7.50	10.00	10.00	13.00	11.00	0.80	17.00	112	345017
		SC..09T3..	40.00	SSTCR10CK-09	38.00	7.50	10.00	10.00	13.00	9.70	0.80	17.00	112	345016
		SC..09T3..	40.00	SSSCR10CK-09	32.00	7.50	10.00	10.00	13.00	14.00	0.80	17.00	112	345015

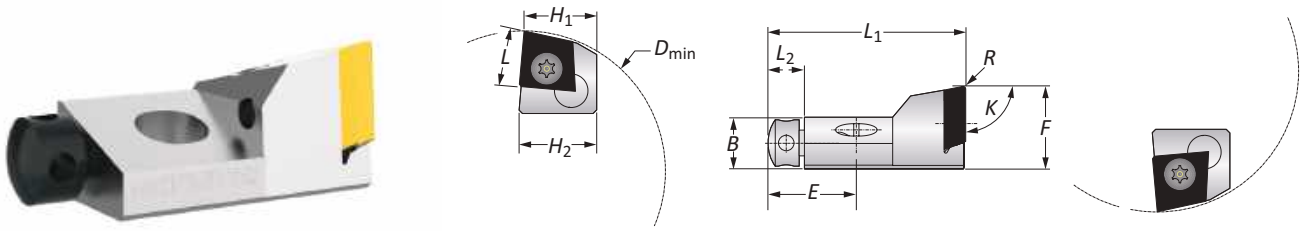


 = Imperial (in)
 = Metric (mm)
 Inserts sold separately

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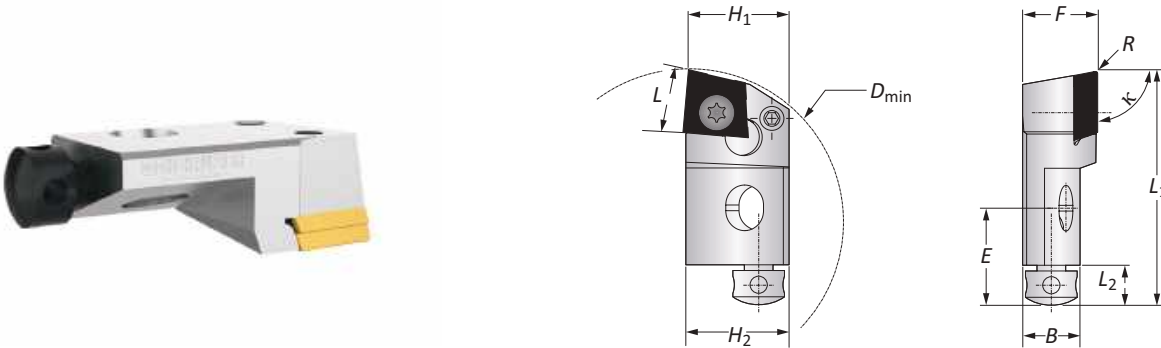
Tangential Compact Lay Down Cartridges | Insert Forms 04 and 05

Diameter Range: ≥ 2.125 " (54.00 mm)



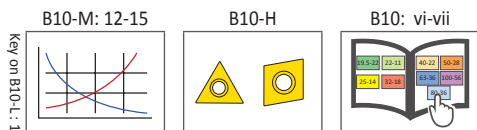
Insert Form 04, 05 Insert Holders

Holder Type	K	D _{min} Boring Range	Insert Holder								Type	L	Insert Form	Part No.
			L ₁	L ₂	B	H ₁	H ₂	F	R Radius	E				
	90°	2.125	1.496	0.295	0.393	0.551	0.590	0.629	0.019	0.669	Right	0.413	04	345023
	90°	2.125	1.496	0.295	0.393	0.551	0.590	0.629	0.019	0.669	Left	0.413	04	345025
	90°	2.755	2.755	0.314	0.551	0.748	0.787	0.866	0.019	0.787	Right	0.570	05	345020
	90°	2.755	2.755	0.314	0.551	0.748	0.787	0.866	0.019	0.787	Left	0.570	05	345022
	90°	54.00	38.00	7.50	10.00	14.00	15.00	16.00	0.50	17.00	Right	10.50	04	345023
	90°	54.00	38.00	7.50	10.00	14.00	15.00	16.00	0.50	17.00	Left	10.50	04	345025
	90°	70.00	45.00	8.00	14.00	19.00	20.00	22.00	0.50	20.00	Right	14.50	05	345020
	90°	70.00	45.00	8.00	14.00	19.00	20.00	22.00	0.50	20.00	Left	14.50	05	345022



Insert Form 04, 05 Radial Cutting Insert Holders

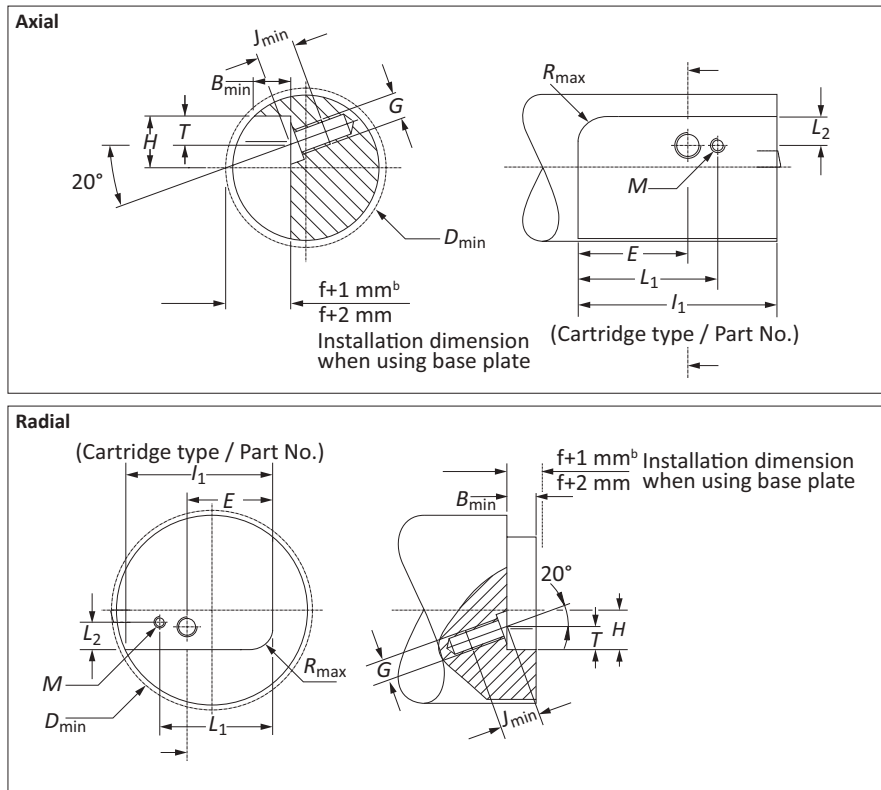
Holder Type	K	D _{min} Boring Range	Insert Holder								Type	L	Insert Form	Part No.
			L ₁	L ₂	B	H ₁	H ₂	F	R Radius	E				
	90°	2.125	1.614	0.295	0.393	0.669	0.708	0.511	0.019	0.669	Right	0.413	04	345024
	90°	2.755	1.968	0.314	0.551	0.826	0.866	0.669	0.019	0.787	Right	0.570	05	345021
	90°	54.00	41.00	7.50	10.00	17.00	18.00	13.00	0.50	17.00	Right	10.50	04	345024
	90°	70.00	50.00	8.00	14.00	21.00	22.00	17.00	0.50	20.00	Right	14.50	05	345021



i = Imperial (in)
m = Metric (mm)
Inserts sold separately



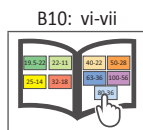
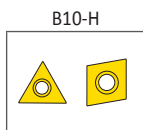
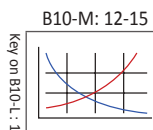
Compact Lay Down Cartridge Mounting Dimensions



	Installation Dimensions				Mounting Thread and Base Plate							Cartridge Type
	D_{min}	H	R_{max}	B_{min}	E	L_1	T	L_2	G	M	J_{min}	
i	0.984	0.315	0.079	0.256	0.512	0.728	0.177	0.165	M4	M2	0.315	XXXXX 08CK ^{1,2}
	1.575	0.394	0.098	0.394	0.669	0.965	0.197	0.185	M6	M3	0.433	XXXXX 10CK
	1.969	0.472	0.217	0.551	0.787	1.102	0.236	0.224	M6	M3	0.472	XXXXX 12CK
	2.165	0.551	0.217	0.630	0.925	1.299	0.236	0.276	M8	M3	0.512	XXXXX 14CK
	2.756	0.787	0.256	0.551	0.787	1.083	0.236	0.441	M8	M3	0.591	345020
	2.756	0.866	0.256	0.551	0.787	1.102	0.236	0.441	M8	M3	0.591	345021*
	2.756	0.787	0.256	0.551	0.787	1.083	0.236	0.441	M8	M3	0.591	345022
	2.126	0.591	0.118	0.394	0.669	0.925	0.197	0.382	M6	M3	0.433	345023
	2.126	0.709	0.118	0.394	0.669	0.945	0.197	0.362	M6	M3	0.433	345024*
	2.126	0.591	0.118	0.394	0.669	0.925	0.197	0.382	M6	M3	0.433	345025
m	25.00	8.00	2.00	6.50	13.00	18.50	4.50	4.20	M4	M2	8.00	XXXXX 08CK ^{1,2}
	40.00	10.00	2.50	10.00	17.00	24.50	5.00	4.70	M6	M3	11.00	XXXXX 10CK
	50.00	12.00	5.50	14.00	20.00	28.00	6.00	5.70	M6	M3	12.00	XXXXX 12CK
	55.00	14.00	5.50	16.00	23.50	33.00	6.00	7.20	M8	M3	13.00	XXXXX 14CK
	70.00	20.00	6.50	14.00	20.00	27.50	6.00	11.20	M8	M3	15.00	345020
	70.00	22.00	6.50	14.00	20.00	28.00	6.00	11.20	M8	M3	15.00	345021*
	70.00	20.00	6.50	14.00	20.00	27.50	6.00	11.20	M8	M3	15.00	345022
	54.00	15.00	3.00	10.00	17.00	23.50	5.00	9.70	M6	M3	11.00	345023
	54.00	18.00	3.00	10.00	17.00	24.00	5.00	9.20	M6	M3	11.00	345024*
	54.00	15.00	3.00	10.00	17.00	23.50	5.00	9.70	M6	M3	11.00	345025

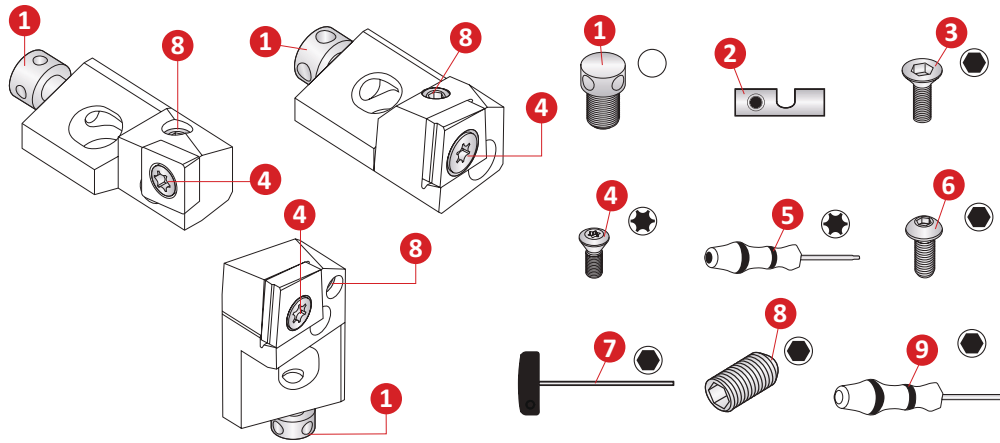
*Radial

- From D_{min} 25 mm - 32 mm, the short clamp holder is 0.5 mm from the middle.
- Installation with base plate.

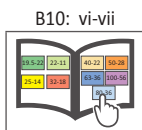
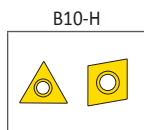
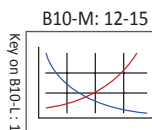


i = Imperial (in)
m = Metric (mm)
Inserts sold separately

Compact Lay Down Cartridges Accessories



Insert Holder Part No.	1 Axial Barrel Screw	2 Shim	3 Insert Screw	4 Insert Screw	5 Torx Driver	6 Holder Fixing Screw	7 Hex Driver	8 Radial Set Screw	9 Hex Driver
345001	215742	345201	215461	115676	115590	215343	415577	114224	215472
345002	415299	345202	116433	115673	115664	215634	415164	070161	215473
345003	215250	345203	116433	415298	215150	215431	415164	215467	115575
345004	215265	345204	116433	215149	215150	315476	415165	215467	115575
345005	415299	345216	116433	115673	115664	215634	415164	070161	215473
345006	415299	345218	116433	115673	115664	215634	415164	070161	215473
345007	415299	345208	116433	115673	115664	215634	415164	070161	215473
345008	415299	345208	116433	115673	115664	215634	415164	070161	215473
345009	415299	345202	116433	115673	115664	215634	415164	070161	215473
345010	215742	345211	215461	115676	115590	215343	415577	114224	215472
345011	215742	345211	215461	115676	115590	215343	415577	114224	215472
345012	215742	345213	215461	115676	115590	215343	415577	114224	215472
345013	215742	345213	215461	115676	115590	215343	415577	114224	215472
345014	215742	345201	215461	115676	115590	215343	415577	114224	215472
345015	415299	345215	116433	115673	115664	215634	415164	070161	215473
345016	415299	345216	116433	115673	115664	215634	415164	070161	215473
345017	415299	345218	116433	115673	115664	215634	415164	070161	215473
345018	415299	345218	116433	115673	115664	215634	415164	070161	215473
345019	415299	345208	116433	115673	115664	215634	415164	070161	215473
345020	215250	345220	116433	415949	215150	315476	415165	215467	115575
345021	215250	345221	116433	415949	215150	315476	415165	215104	115575
345022	215250	345222	116433	415949	215150	315476	415165	215467	115575
345023	415299	345223	116433	415977	115664	215634	415164	415280	215473
345024	415299	345224	116433	415977	115664	215634	415164	070161	215473
345025	415299	345225	116433	415977	115664	215634	415164	415280	215473



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

Inserts sold separately

Guaranteed Test / Demo Application Form

Distributor PO # _____

The following must be filled out completely before your test will be considered.

IMPORTANT: For processing, send purchase order to your Allied Field Sales Engineer (FSE). Please clearly mark the paperwork as "Test Order."

Distributor Information

Company Name: _____
 Contact: _____
 Account Number: _____
 Phone: _____
 Email: _____

End User Information

Company Name: _____
 Contact: _____
 Industry: _____
 Phone: _____
 Email: _____

Current Process List all tooling, coatings, substrates, speeds and feeds, tool life, and any problems you are experiencing.

Test Objective List what would make this a successful test (i.e. penetration rate, finish, tool life, hole size, etc.).

Application Information

Hole Diameter: _____ in/mm	Tolerance: _____	Material: _____ (4150, A36, cast iron, etc.)
Preexisting Diameter: _____ in/mm	Depth of Cut: _____ in/mm	Hardness: _____ (BHN, Rc)
Required Finish: _____ RMS	State: _____	(Casting, hot rolled, forging)

Machine Information

Machine Type: _____ (Lathe, screw machine, machine center, etc.)	Builder: _____ (Haas, Mori Seiki, etc.)	Model #: _____
Shank Required: _____ (CAT50, Morse taper, etc.)	Power: _____ HP/KW	
Rigidity: _____	Orientation: _____	Tool Rotating: _____
<input type="checkbox"/> Excellent	<input type="checkbox"/> Vertical	<input type="checkbox"/> Yes
<input type="checkbox"/> Good	<input type="checkbox"/> Horizontal	<input type="checkbox"/> No
<input type="checkbox"/> Poor		Thrust: _____ lbs/N

Coolant Information

Coolant Delivery: _____ (Through tool, flood)	Coolant Pressure: _____ PSI / bar
Coolant Type: _____ (Air mist, oil, synthetic, water soluble, etc.)	Coolant Volume: _____ GPM / LPM

Requested Tooling

QTY	Item Number	QTY	Item Number



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 Toll Free USA & Canada: (800) 321-5537
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Allied Machine & Engineering ("Allied Machine") warrants to original equipment manufacturers, distributors, industrial and commercial users of its products for one year from the original date of sale that each new product manufactured or supplied by Allied Machine shall be free from defects in material and workmanship.

Allied Machine's sole and exclusive obligation under this warranty is limited to, at its option, without additional charge, replacing or repairing this product or issuing a credit. For this warranty to be applied, the product must be returned freight prepaid to the plant designated by an Allied Machine representative and which, upon inspection, is determined by Allied Machine to be defective in material and workmanship.

Complete information as to operating conditions, machine, setup, and the application of cutting fluid should accompany any product returned for inspection. This warranty shall not apply to any Allied Machine products which have been subjected to misuse, abuse, improper operating conditions, improper machine setup or improper application of cutting fluid or which have been repaired or altered if such repair or alteration, in the judgement of Allied Machine, would adversely affect the performance of the product.

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Allied Machine shall not be liable in contract or in tort (including, without limitation, negligence, strict liability or otherwise) for economic losses of any kind or for any special, incidental, indirect, consequential, punitive or exemplary damages arising in any way out of the performance of, or failure to perform this agreement.

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