

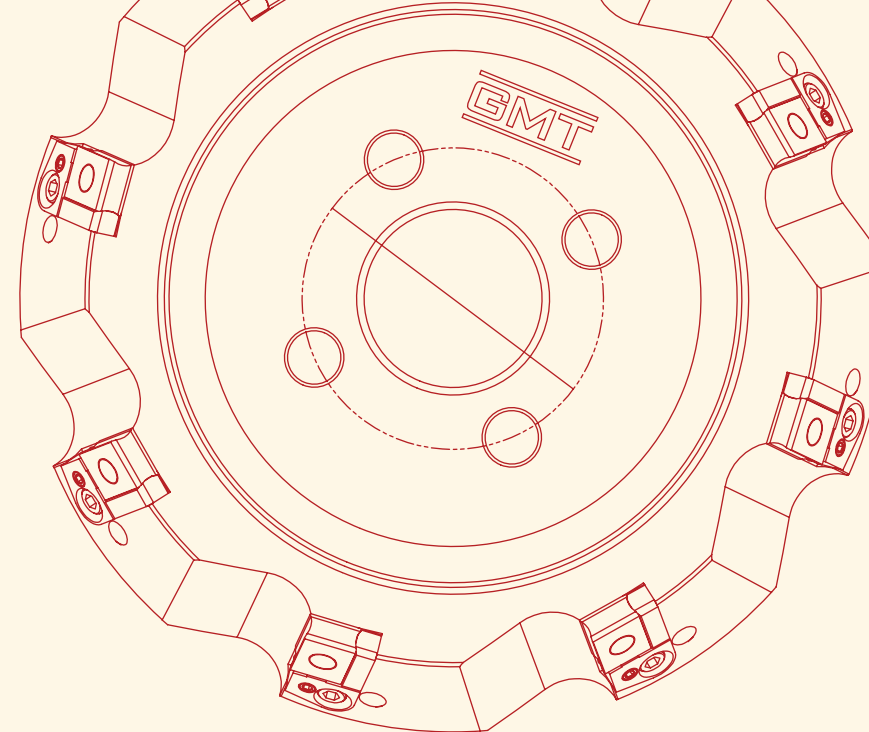
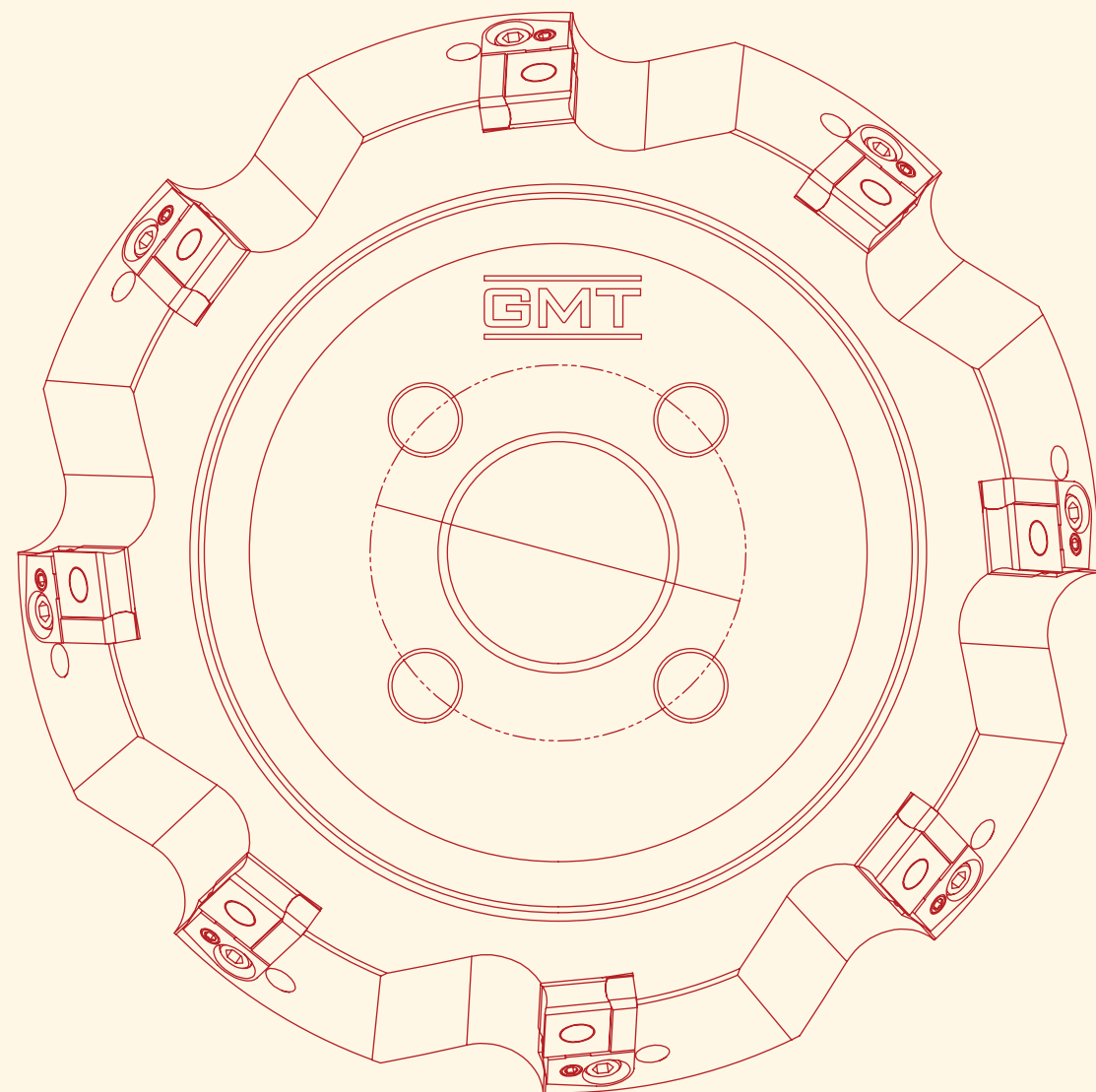
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01 MILLING CUTTERS



HEAVY DUTY MILLING CUTTERS
GHM 60' (Ap=19)



HEAVY DUTY MILLING CUTTERS
GHM 60' (AP=12)



FACE MILLING CUTTERS
HLM 90' (AP=15)



SHOULD MILLING CUTTERS
SFM (AP=24)



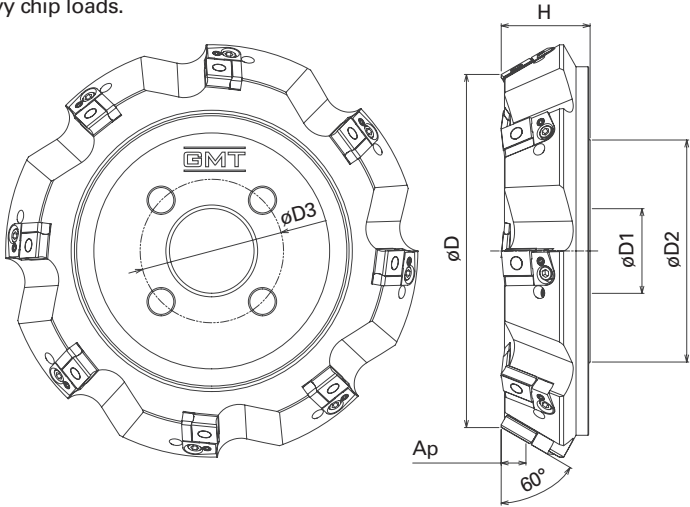
MILLING INSERTS

HEAVY DUTY MILLING CUTTERS

GHM 60' (Ap=19)



- For heavy duty oughing operations.
- For use on steel and cast iron.
- Accept heavy chip loads.



PARTS	
Clamp Stud	ST11.43
Clamp Screw	CS12.18
Adjustment Element	AE47.01
Shim	SH47.15

* Cutter form change able for quality improvement, on request. * Suitable insert upgrade for workpiece material, on request

Cut Dia. D	Order No.	Cut Edge	D1	D2	H	D3	Inserts	Max ap.
125	GHM60.25-04Z0125R	4	40	80	63		LHM43625-101	19
160	GHM60.25-06Z0160R	6	40	98	63			
200	GHM60.25-06Z0200R	6	60	130	63	101.6		
250	GHM60.25-08Z0250R	8	60	160	63	101.6		
315	GHM60.25-10Z0315R	10	60	220	63	101.6		

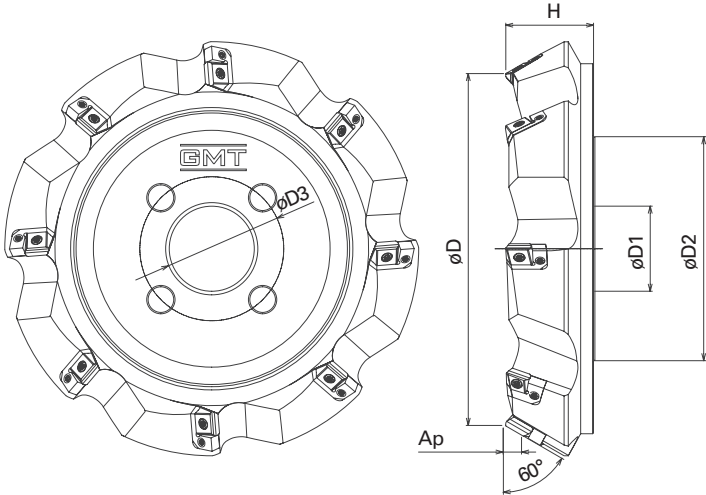
Workpiece Material		HB	Cutting Speed (m/min)		Feed (mm/rev)	Depth
			LHM43625-101	LHM43625-201		
P	Unalloyed steels, machining steels					
	up to 450 N/mm²	125	160-200			
	up to 650 N/mm²	190	160-200			
	up to 950 N/mm²	285	160-200			
	up to 1100 N/mm²	325	160-200			
	Low alloy steels					
	up to 600 N/mm²	180	160-200			
	up to 950 N/mm²	285	100-130			
	up to 1300N/mm²	380	100-130			
	High alloy steels					
up to 700 N/mm²	210	100-120				
up to 1150 N/mm²	340	100-120				
M	Stainless steels					
	ferritic/martensitic, martensitic austenitic, austenitic/ferritic	180-240	70-110			
K	Cast iron					
	grey cast iron up to 180 HB	180		90-130		
	grey cast iron up to 260 HB	260		90-130		
	nodular cast iron up	180		100-130		
	malleable cast iron up to 130 HB	130		90-130		
	malleable cast iron up to 230 HB	230		90-130		

HEAVY DUTY MILLING CUTTERS

GHM 60' (Ap=12)



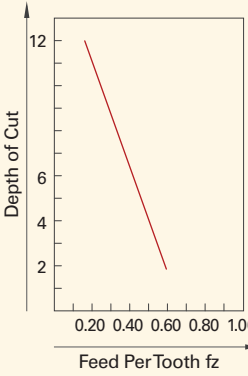
- For heavy duty oughing operations.
- For use on steel and cast iron.



PARTS	
Clamp Screw	FTNA0516
L-Nest Screw	ST415-60
L-Nest	B291708-15'

* Cutter form change able for quality improvement, on request. * Suitable insert upgrade for workpiece material, on request

Cut Dia. D	Order No.	Cut Edge	D1	D2	H	D3	Inserts	Max ap.
100	GHL60.19-04Z0100Z	4	40	80	63		LHS43519-101 LHS43519-201	12
125	GHL60.19-06Z0125Z	6	40	80	63			
160	GHL60.19-08Z0160Z	6	40	98	63			
200	GHL60.19-10Z0200Z	8	60	130	63	101.6		
250	GHL60.19-12Z0250Z	10	60	130	63	101.6		

Workpiece Material		HB	Cutting Speed (m/min)		Feed (mm/rev)	Depth
			LHS43519-101	LHS43519-201		
P	Unalloyed steels, machining steels					
	up to 450 N/mm ²	125	160-200			
	up to 650 N/mm ²	190	160-200			
	up to 950 N/mm ²	285	160-200			
	up to 1100 N/mm ²	325	160-200			
	Low alloy steels					
	up to 600 N/mm ²	180	160-200			
	up to 950 N/mm ²	285	100-130			
	up to 1300N/mm ²	380	100-130			
	High alloy steels					
up to 700 N/mm ²	210	100-120				
up to 1150 N/mm ²	340	100-120				
K	Cast iron					
	grey cast iron up to 180 HB	180		90-130		
	grey cast iron up to 260 HB	260		90-130		
	nodular cast iron up	180		100-130		
	malleable cast iron up to 130 HB	130		90-130		
	malleable cast iron up to 230 HB	230		90-130		

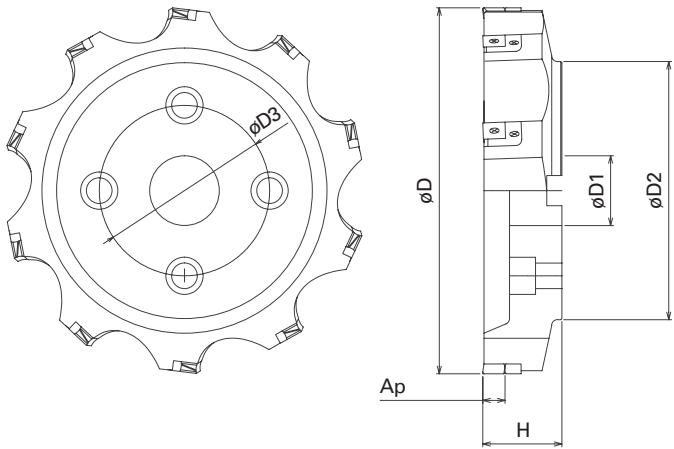
- The recommended cutting condition is in perfect for machine stiffness, workpiece clamping, tool chucking system.

HEAVY DUTY MILLING CUTTERS

HLM 90' (Ap=15)



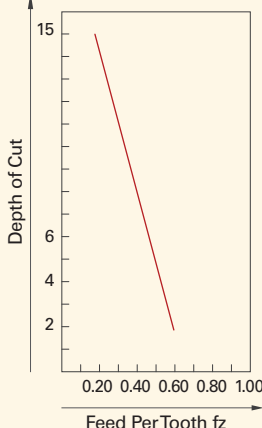
- For heavy duty oughing operations.
- For use on steel and cast iron.
- Accept heavy chip loads.



PARTS	
Clamp Screw	
	FTNA0516
L-Nest Screw	
	ST415-60
L-Nest	
	B291708-15'

* Cutter form change able for quality improvement, on request. * Suitable insert upgrade for workpiece material, on request

Cut Dia. D	Order No.	Cut Edge	D1	D2	H	D3	Inserts	Max ap.
125	HLM90.19-05Z0125R	5	40	80	63		LHS43519-101 LHS43519-201	15
160	HLM90.19-06Z0160R	6	40	98	63			
200	HLM90.19-08Z0200R	8	60	130	63	101.6		
250	HLM90.19-10Z0250R	10	60	160	63	101.6		
315	HLM90.19-12Z0315R	12	60	220	80	101.6		

Workpiece Material		HB	Cutting Speed (m/min)		Feed (mm/rev)	Depth
			LHS43519-101	LHS43519-201		
P	Unalloyed steels, machining steels					
	up to 450 N/mm²	125	160-200			
	up to 650 N/mm²	190	160-200			
	up to 950 N/mm²	285	160-200			
	up to 1100 N/mm²	325	160-200			
	Low alloy steels					
	up to 600 N/mm²	180	160-200			
	up to 950 N/mm²	285	100-130			
	up to 1300N/mm²	380	100-130			
	High alloy steels					
up to 700 N/mm²	210	100-120				
up to 1150 N/mm²	340	100-120				
K	Cast iron					
	grey cast iron up to 180 HB	180		90-130		
	grey cast iron up to 260 HB	260		90-130		
	nodular cast iron up	180		100-130		
	malleable cast iron up to 130 HB	130		90-130		
	malleable cast iron up to 230 HB	230		90-130		

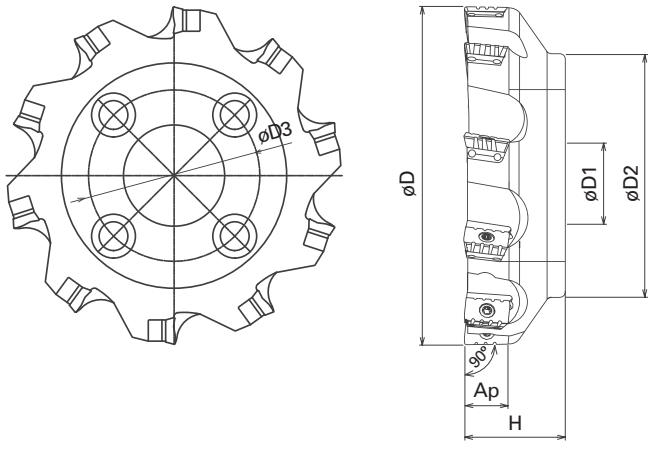
- The recommended cutting condition is in perfect for machine stiffness, workpiece clamping, tool chucking system.

SHOULD MILLING CUTTERS

SFM (Ap=24)



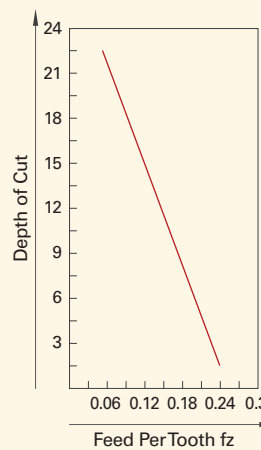
- This milling cutters are developed for machining cast iron and steel components.
- Reduce the cutting force and vibration.
- Reduce the risk of chip jamming.



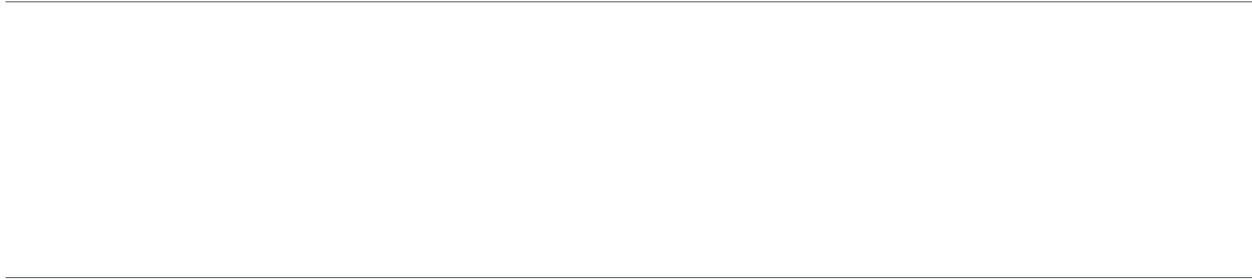
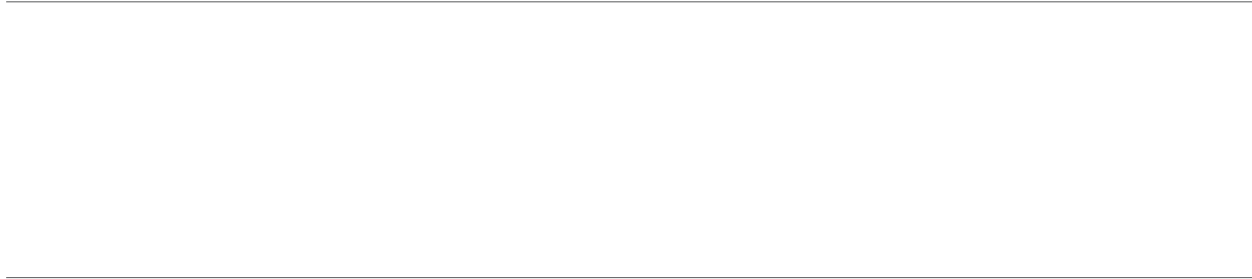
PARTS	
Insert Screw	
	GSM2209
Shim	
	SHM9040
Shim Screw	
	GSM2210

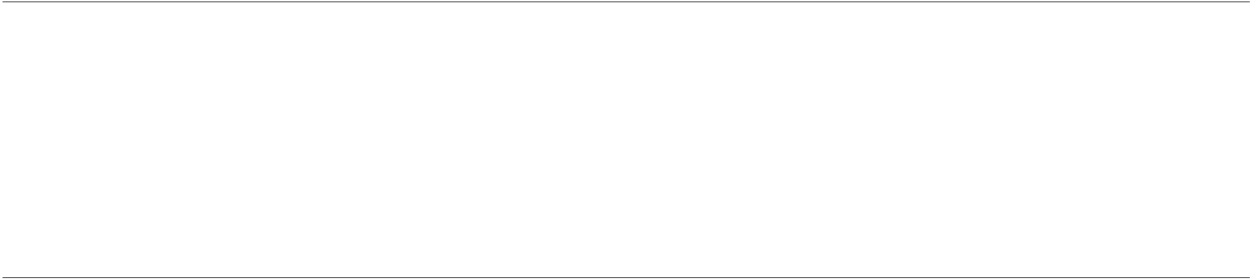
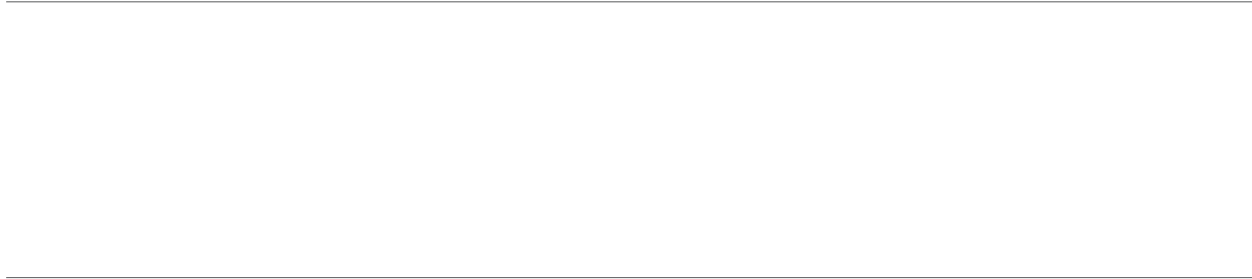
* Cutter form change able for quality improvement, on request. * Suitable insert upgrade for workpiece material, on request

Cut Dia. D	Order No.	Cut Edge	D1	D2	H	D3	Inserts	Max ap.
80	SFM90.17-04Z0080M	4	27	55	50		1.7250601 1.7250603	24
100	SFM90.17-06Z0100M	6	32	67	50			
125	SFM90.17-06Z0125M	6	40	80	60			
160	SFM90.17-08Z0160M	8	40	107	60			
200	SFM90.17-10Z0200M	10	60	130	60	101.6		
250	SFM90.17-12Z0250M	12	60	160	60	101.6		
315	SFM90.17-14Z0315M	14	60	220	80	101.6		

Workpiece Material		HB	Cutting Speed (m/min)		Feed (mm/tooth)	Depth
			1.7250601	1.7250603		
P	Unalloyed steels, machining steels					
	up to 450 N/mm²	125	120-180			
	up to 650 N/mm²	190	120-180			
	up to 950 N/mm²	285	120-180			
	up to 1100 N/mm²	325	120-180			
	Low alloy steels					
	up to 600 N/mm²	180	120-180			
	up to 950 N/mm²	285	120-180			
	up to 1300N/mm²	380	110-160			
	High alloy steels					
up to 700 N/mm²	210	110-160				
up to 1150 N/mm²	340	100-140				
K	Cast iron					
	grey cast iron up to 180 HB	180		120-180		
	grey cast iron up to 260 HB	260		120-180		
	nodular cast iron up	180		120-180		
	malleable cast iron up to 130 HB	130		120-180		
	malleable cast iron up to 230 HB	230		120-160		

- The recommended cutting condition is in perfect for machine stiffness, workpiece clamping, tool chucking system.



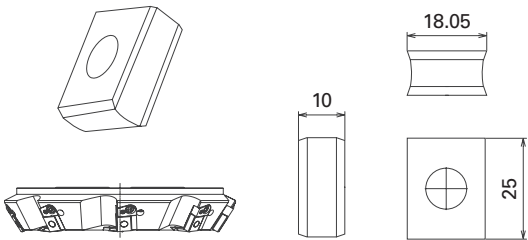




MILLNG INSERT

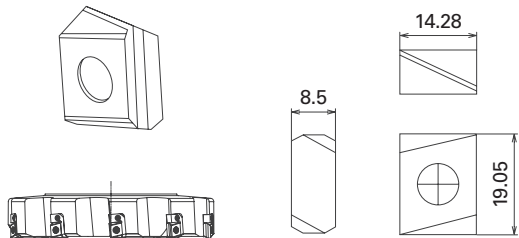
GHM 60° HEAVY DUTY FACE MILL CUTTER

Insert	GK3015	GP1035
LHM43625-101		○
LHM43625-201	○	
	Carbide	
P		●
M		○
K	○	



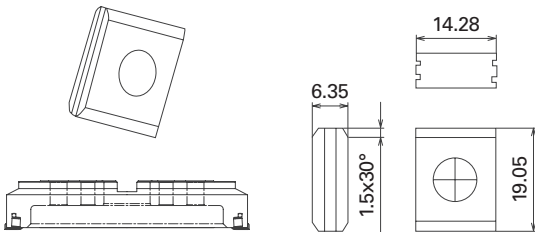
GHM 60° & HLM 90° HEAVY DUTY FACE MILL CUTTER

Insert	GK3030	GP1030
LHS43519-101		○
LHS43519-201	○	
	Carbide	
P		●
M		●
K	●	



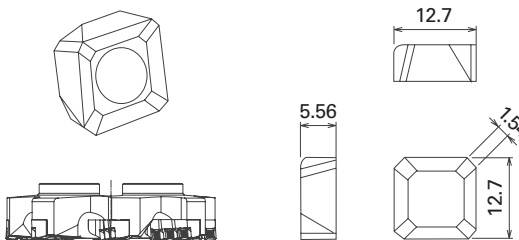
FWC FINISH CUTTER INSERT

Insert	GKN15	GKC15A	GPC10	GNT10S
YWL19614	○	○	○	○
	Carbide			Cermet
P			●	●
M			○	●
K	●	●		



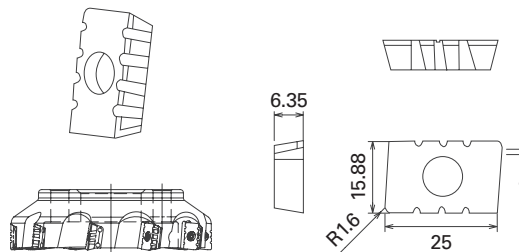
RCH PLUNGING MILLING CUTTER INSERT

Insert	GK3510	GK5515	GP7525	GP125
SNKT1205GST	○	○	○	○
	Carbide			
P			●	●
M			○	○
K	●	●		

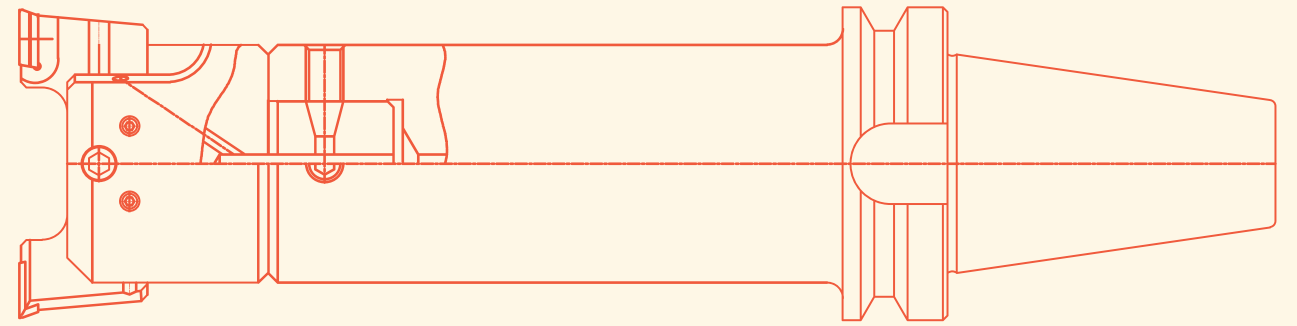
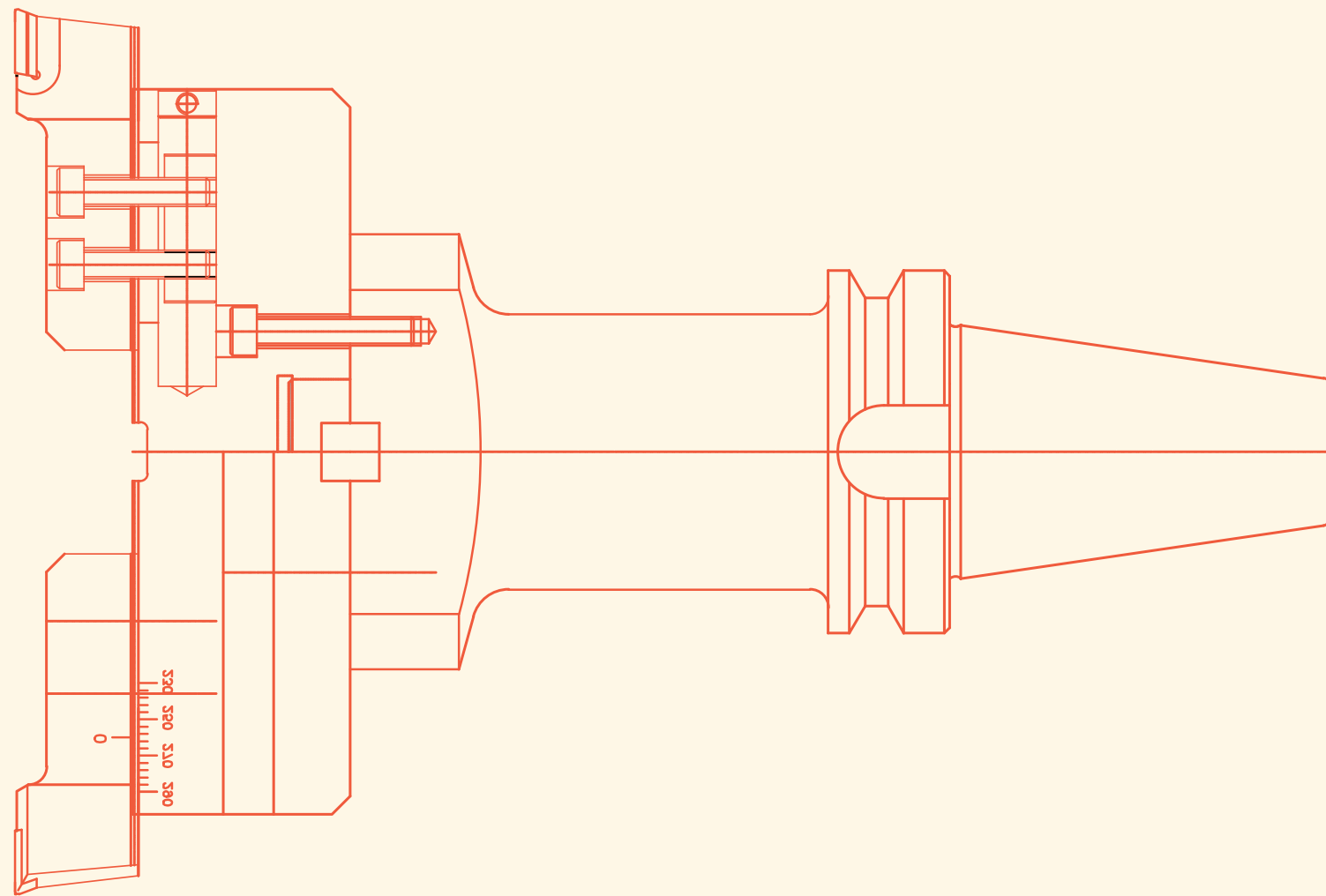


SFM SHOULDER MILLING CUTTERS INSERT

Insert	GK3505	GCP1720	GCP730
1.7250601-3PP		○	○
1.7250601-4PP		○	○
1.7250603-3PK	○		
1.7250603-4PK	○		
	Carbide		
P		●	●
K	●		



02 BALANCE TWIN EDGE BORING TOOL SYSTEMS



STANDARD ASSEMBLY : D44-D150 ASSEMBLY OPTION

- Basic Arbors
- Basic Heads
- Extension
- Twin Edge Finishing Cartridge Sets
- Insert



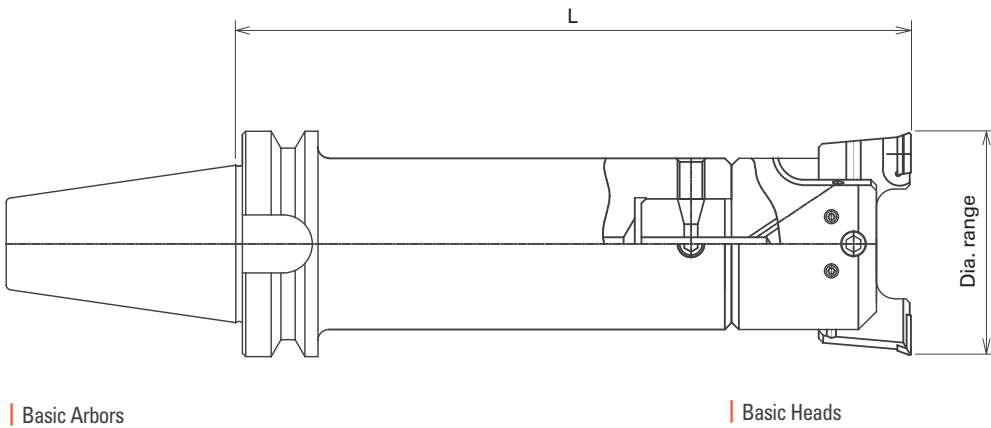
STANDARD ASSEMBLY : D150-D530 ASSEMBLY OPTION

- Basic Arbors
- Basic Heads
- Twin Edge Cartridge
- Inserts



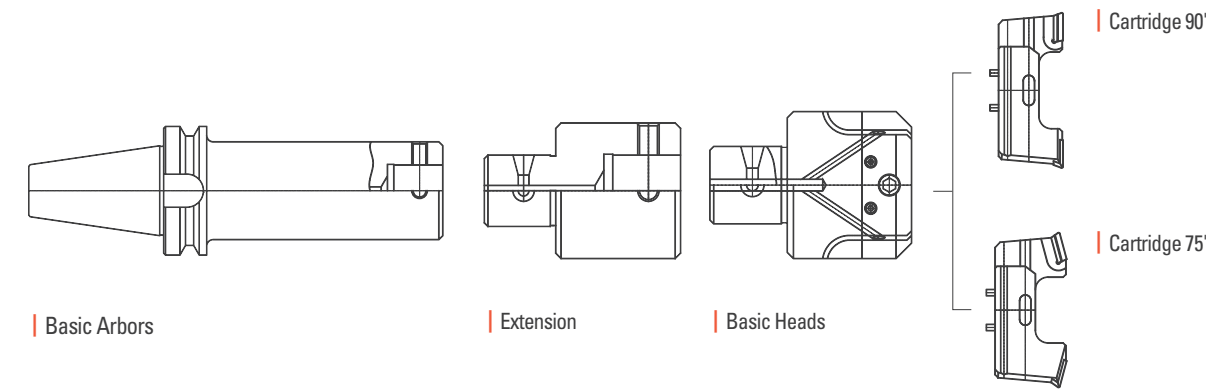
BALANCE TWIN EDGE BORING TOOL SYSTEMS

STANDARD ASSEMBLY : D44 ~ D150



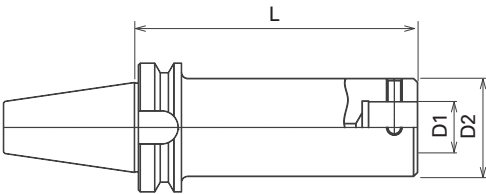
Dia. range	Order No.				L
	Basic Arbor	Basic Head	Cartridge (90°)	Cartridge (75°)	
D44~62	BT40-MD28.150	BH-TW44.62	GTW-4462.90-FP10	GTW-4462.75-FP10	200
D60~85	BT40-MD32.200	BH-TW60.85	GTW-6085.90-FP14	GTW-6085.75-FP14	255
D44~62	BT50-MD28.150	BH-TW44.62	GTW-4462.90-FP10	GTW-4462.75-FP10	200
D60~85	BT50-MD32.200	BH-TW60.85	GTW-6085.90-FP14	GTW-6085.75-FP14	255
D80~110	BT50-MD36.250	BH-TW80.110	GTW-8011.90-FP14	GTW-8011.75-FP14	305
D105~130	BT50-MD45.250	BH-TW105.130	GTW-1013.90-FP17	GTW-1013.75-FP17	320
D120~150	BT50-MD45.280	BH-TW120.150	GTW-1215.90-FP17	GTW-1215.75-FP17	350

ASSEMBLY OPTION



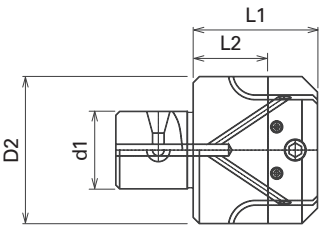
Dia. range	Order No.				
	Basic Arbor	Extension	Basic Head	Cartridge (90°)	Cartridge (75°)
D44~62	BT40-MD28.150	EX-MD28.60	BH-TW44.62	GTW-4462.90-FP10	GTW-4462.75-FP10
D60~85	BT40-MD32.200	EX-MD32.65	BH-TW60.85	GTW-6085.90-FP14	GTW-6085.75-FP14
D44~62	BT50-MD28.150	EX-MD28.60	BH-TW44.62	GTW-4462.90-FP10	GTW-4462.75-FP10
D60~85	BT50-MD32.200	EX-MD32.65	BH-TW60.85	GTW-6085.90-FP14	GTW-6085.75-FP14
D80~110	BT50-MD36.250	EX-MD36.80	BH-TW80.110	GTW-8011.90-FP14	GTW-8011.75-FP14
D105~130	BT50-MD45.250	EX-MD45.100	BH-TW105.130	GTW-1013.90-FP17	GTW-1013.75-FP17
D120~150	BT50-MD45.280	EX-MD45.125	BH-TW120.150	GTW-1215.90-FP17	GTW-1215.75-FP17

Basic Arbors



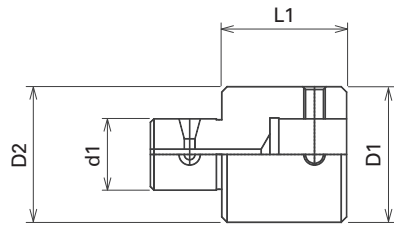
Dia. range	Order No.	L	D1	D2
D44~62	BT40-MD28.150	150	28	40
D60~85	BT40-MD32.200	200	32	55
D44~62	BT50-MD28.150	150	28	40
D60~85	BT50-MD32.200	200	32	55
D80~110	BT50-MD36.250	250	36	75
D105~130	BT50-MD45.250	250	45	100
D120~150	BT50-MD45.280	280	45	115

Basic Heads



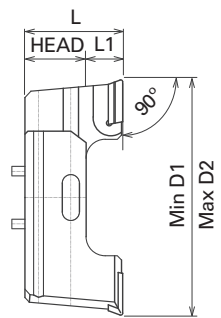
Dia. range	Order No.	L1	L2	d1	D2
D44~62	BH-TW44.62	60	30	28	40
D60~85	BH-TW60.85	65	35	32	55
D80~110	BH-TW80.110	65	35	36	75
D105~130	BH-TW105.130	80	50	45	100
D120~150	BH-TW120.150	80	50	45	115

Extension

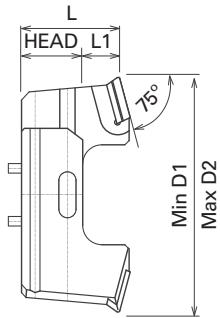


Dia. range	Order No.	L1	d1	D1	D2
D44~62	EX-MD28.60	60	28	28	40
D60~85	EX-MD32.65	65	32	32	55
D80~110	EX-MD36.80	65	36	36	75
D105~130	EX-MD45.100	80	45	45	100
D120~150	EX-MD45.125	80	45	45	115

Twin Edge Finishing Cartridge Sets



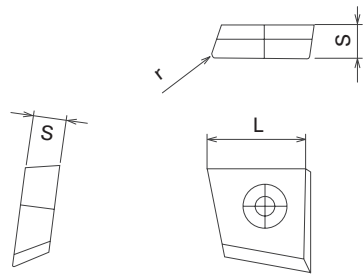
Face Angle 90°



Face Angle 75°

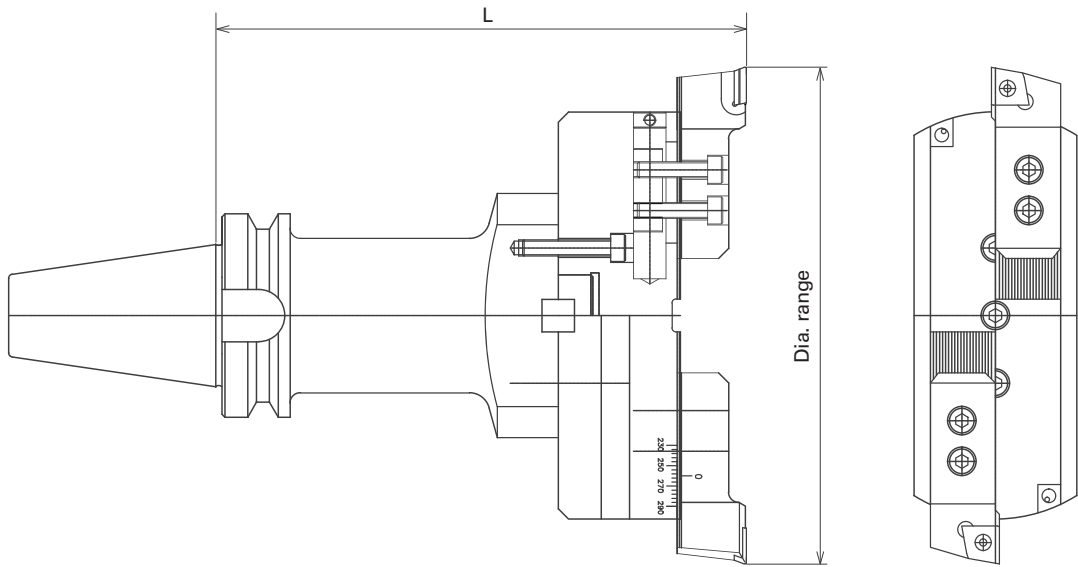
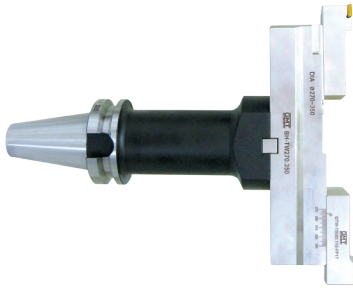
Dia. range	Order No.		L1	L1	Min D1	Max D2	Insert	Screw
	Face Angle 90°	Face Angle 75°						
D44~62	GTW-4462.90-FP10	GTW-4462.75-FP10	50	20	44	62	FP100405.10	CS50-130
D60~85	GTW-6085.90-FP14	GTW-6085.75-FP14	50	20	60	85	FP140510.10	CS50-130
D80~110	GTW-8011.90-FP14	GTW-8011.75-FP14	50	20	80	110	FP140510.10	CS50-130
D105~130	GTW-1013.90-FP17	GTW-1013.75-FP17	50	20	105	130	FP170610.10	CS50-130
D120~150	GTW-1215.90-FP17	GTW-1215.75-FP17	50	20	120	150	FP170610.10	CS50-130

Insert



Order No.	L	S	r	Screw	P		M	K
FP100408.10	10.5	4	0.5	GS40-110	GP910	GP925	GM525	GK310
FP140510.10	14.5	5	1	GS50-130	GP910	GP925	GM525	GK310
FP170610.10	17.5	6	1	GS50-130	GP910	GP925	GM525	GK310

BALANCE TWIN EDGE BORING TOOL SYSTEMS
STANDARD ASSEMBLY : D150~D530



Basic Arbors

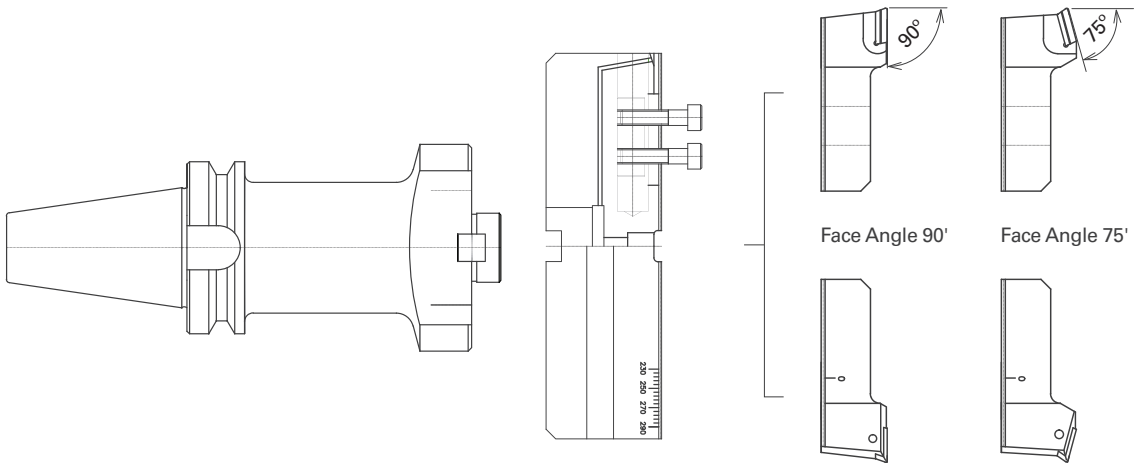
Basic Heads

Cartridges

Dia. range	Order No.				L
	Basic Arbor	Basic Head	Cartridge (90°)	Cartridge (75°)	
D150~210	BT50-PT40.000ST	BH-TW150.210	GTW-15060.90-FP17	GTW-15060.75-FP17	250. 300. 350
D200~280	BT50-PT40.000ST	BH-TW200.280	GTW-20080.90-FP17	GTW-20080.75-FP17	250. 300. 350
D270~350	BT50-PT40.000ST	BH-TW270.350	GTW-20080.90-FP17	GTW-20080.75-FP17	250. 300. 350
D340~440	BT50-PT40.000	BH-TW340.440	GTW-34080.90-FP17	GTW-34080.75-FP17	250. 300. 350
D430~530	BT50-PT40.000	BH-TW430.510	GTW-34080.90-FP17	GTW-34080.75-FP17	250. 300. 350

ASSEMBLY OPTION

02 BALANCE TWIN EDGE
BORING TOOL SYSTEMS

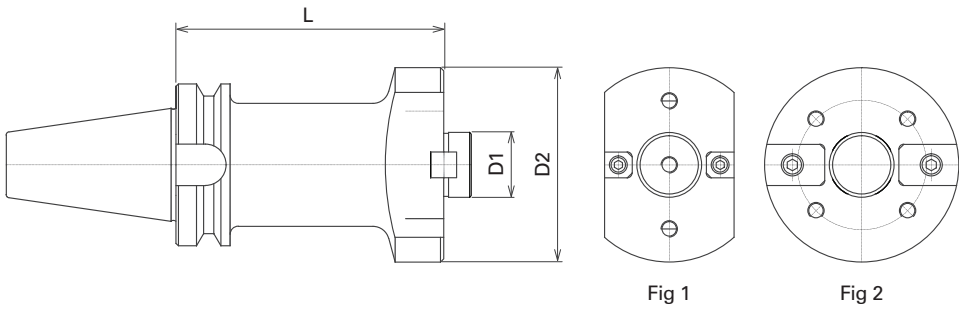


Basic Arbors

Basic Heads

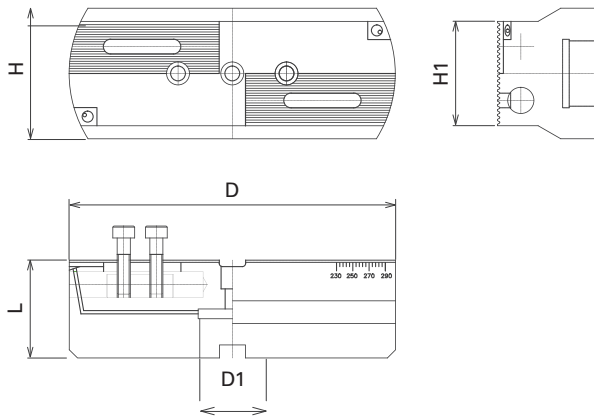
Cartridge

Basic Arbors



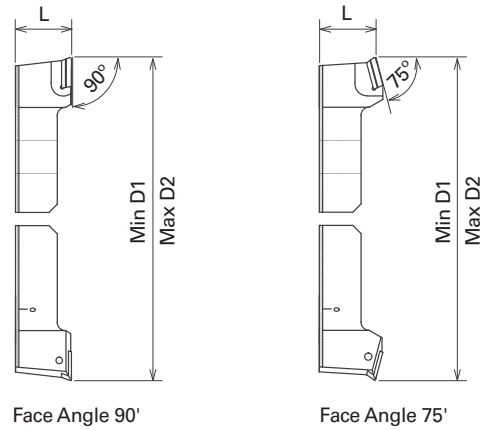
Dia. range	Order No.	D1	D2	L	Picture
D150~350	BT50-PT40.150ST	40	120	150	Fig 1
	BT50-PT40.200ST	40	120	200	Fig 1
	BT50-PT40.250ST	40	120	250	Fig 1
D340~510	BT50-PT40.150	40	130	150	Fig 2
	BT50-PT40.200	40	130	200	Fig 2

Basic Heads



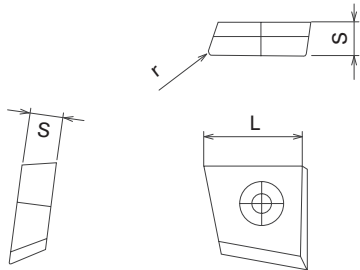
Dia. range	Order No.	D	D1	H	H1	L
D150~210	BH-TW150.210	135	40	80	64	60
D200~280	BH-TW200.280	185	40	80	64	60
D270~350	BH-TW270.350	255	40	80	64	60
D340~440	BH-TW340.440	325	40	130	80	65
D430~530	BH-TW130.530	415	40	130	80	65

Twin Edge Cartridge



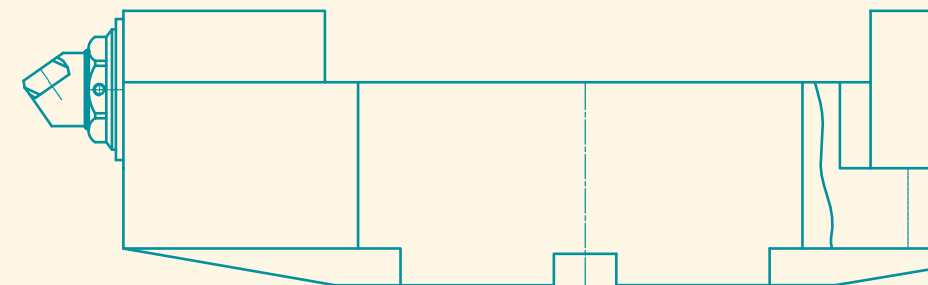
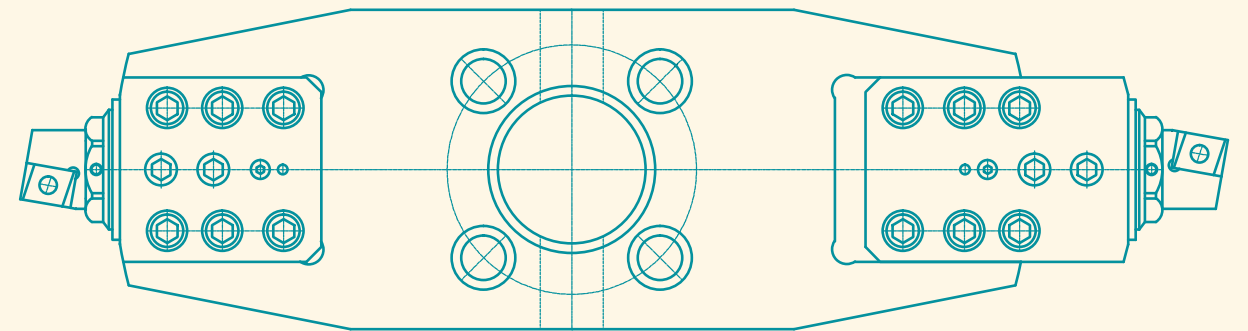
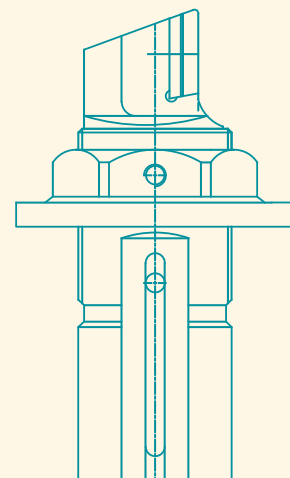
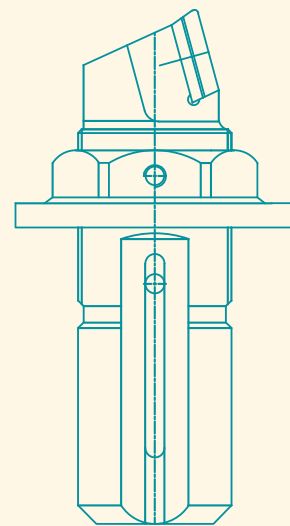
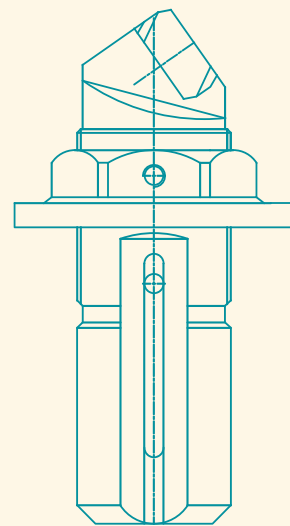
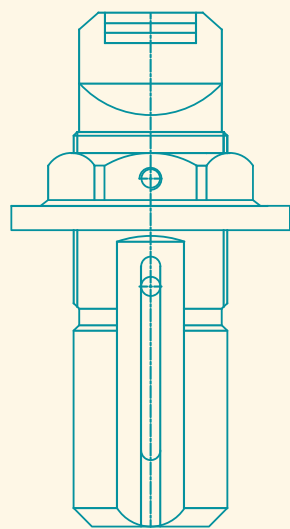
Dia. range	Order No.		L1	Min D1	Max D2	Insert	Screw
	Face Angle 90	Face Angle 75					
D150~210	GTW-15060.90-FP17	GTW-15060.75-FP17	35	150	210	FP170610.10	CS50-130
D200~280	GTW-20080.90-FP17	GTW-20080.75-FP17	35	200	280	FP170610.10	CS50-130
D270~350	GTW-20080.90-FP17	GTW-20080.75-FP17	35	270	350	FP170610.10	CS50-130
D340~440	GTW-34010.90-FP17	GTW-34010.75-FP17	40	340	440	FP170610.10	CS50-130
D430~530	GTW-34010.90-FP17	GTW-34010.75-FP17	40	430	530	FP170610.10	CS50-130

Inserts



Order No.	L	S	r	Screw	P		M	K
FP170610.10	175	6	1	GS50-130	GP920	GP935	GM525	GK315

03 MAX BORE BORING TOOL SYSTEMS



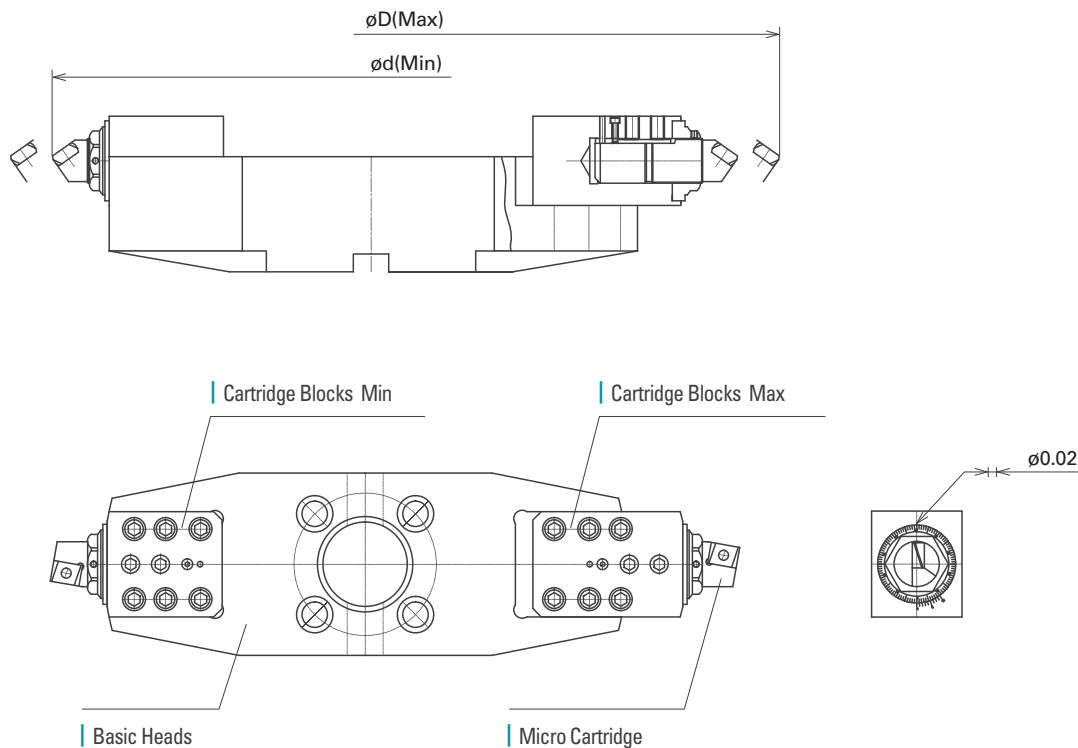
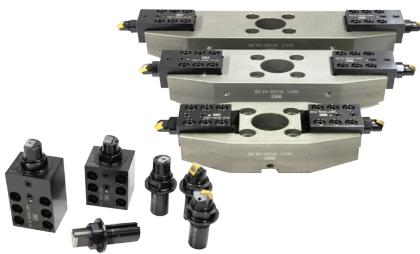
ASSEMBLY OPTION

- Bore Heads
- Cartridge Blocks
- Micro Cartridges
- Max Bore Micro Cartridges Inserts



MAX BORE BORING TOOL SYSTEMS

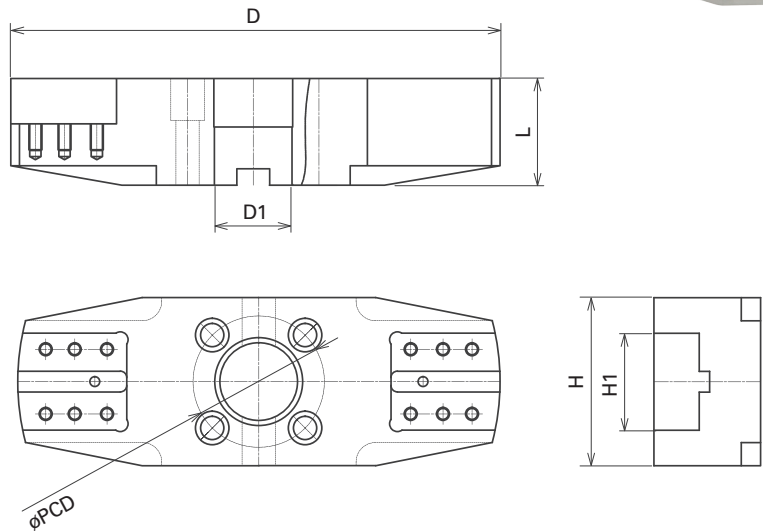
ASSEMBLY OPTION



Assembly Option	Bore Heads		Cartridge Blocks		Cartridge Blocks	
Order No.	Order No.	Dia. Min~Max	Order No.	D Min	Order No.	D Max
MAX PT60-34.50RU.FN	MAX-34.50	D340~500	GMBL-3275-120	D340~425	GMBL-3275-145	D415~500
MAX PT60-44.60RU.FN	MAX-44.60	D440~600		D340~525		D515~600
MAX PT60-54.70RU.FN	MAX-54.70	D540~700		D540~625		D600~700
MAX PT60-64.85RU.FN	MAX-64.85	D640~855	GMBL-40120-160	D640~755	GMBL-40120-230	D740~855
MAX PT60-84.105RU.FN	MAX-84.105	D840~1055		D840~955		D940~1055
MAX PT60-104.125RU.FN	MAX-104.125	D1040~1255		D1040~1155		D1140~1255

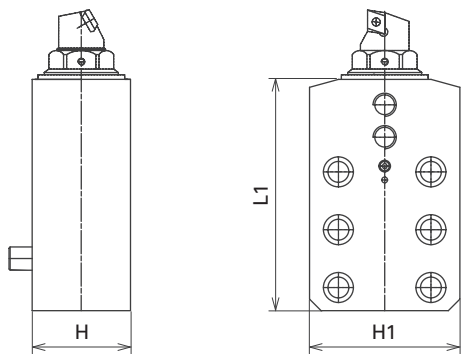
Assembly Option	Micro Cartridges		Micro Cartridges		Balance Weights	
Order No.	Order No.	D Min	Order No.	D Max	Order No.	Dia. Min~Max
MAX PT60-34.50RU.FN	GMR-3255LN19 GMR-3200YW19	D340~425	GMR-3255LN19 GMR-3200YW19	D415~500	GMBW-75.120 GMBW-75.160	D340~500
MAX PT60-44.60RU.FN		D340~525		D515~600		D400~600
MAX PT60-54.70RU.FN		D540~625		D600~700		D540~700
MAX PT60-64.85RU.FN	GMR-4055LN25 GMR-4000YW19	D640~755	GMR-4055LN25 GMR-4000YW19	D740~855	GMBW-120-160 GMBW-120-230	D640~855
MAX PT60-84.105RU.FN		D840~955		D940~1055		D840~1055
MAX PT60-104.25RU.FN		D1040~1155		D1140~1255		D1040~1255

Bore Heads



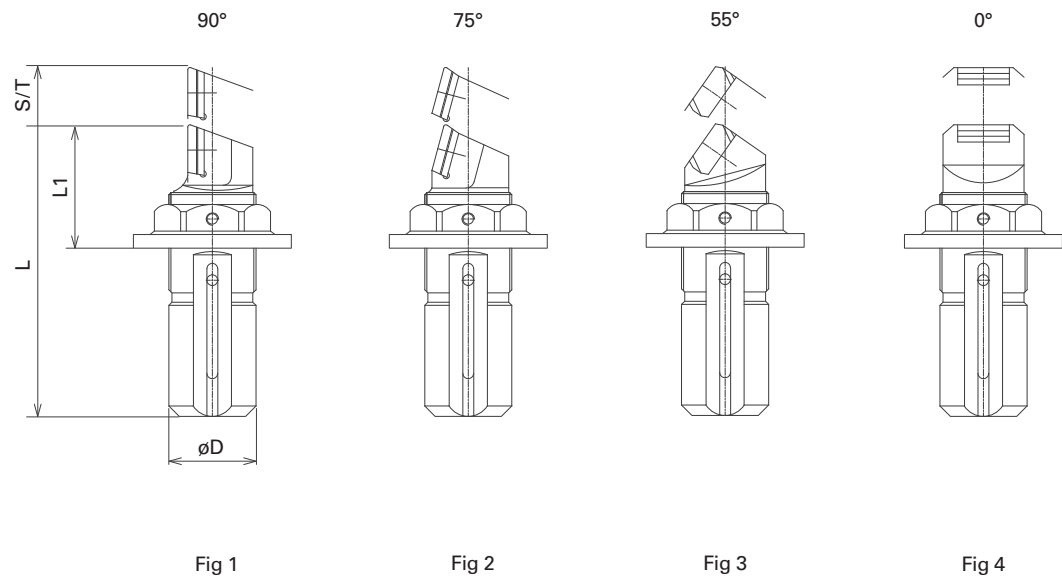
Order No.	Dia. Min~Max	D	D1	L	H	H1	PCD
MAX-34.50	D340~500	280	60	95	130	75	101.6
MAX-44.60	D440~600	380	60	95	130	75	101.6
MAX-54.70	D540~700	480	60	95	130	75	101.6
MAX-64.85	D640~855	580	60	125	200	120	177.8
MAX-84.105	D840~1055	880	60	125	200	120	177.8
MAX-104.125	D1040~1255	980	60	125	200	120	177.8

Cartridge Blocks



Order No.	L1	H1	H	Micro Cartridge	
GMBL-3275-120	120	75	64	GMR-3290FR14.	GMR-3275FR14
GMBL-3275-145	145	75	64	GMR-3255LN19.	GMR-3200YW19
GMBL-42120-160	160	120	85	GMR-4290FR17.	GMR-4275FR17
GMBL-42120-230	230	120	85	GMR-4255LN25.	GMR-4200YW19

Micro Cartridges



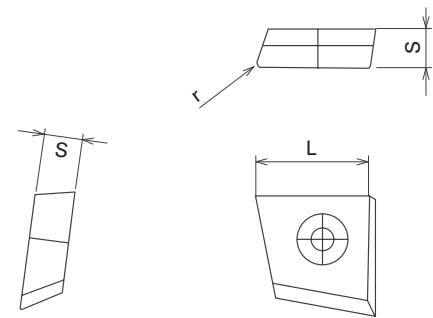
MEDIUM & FINISHING

ROUGHING

FINE FINISHING

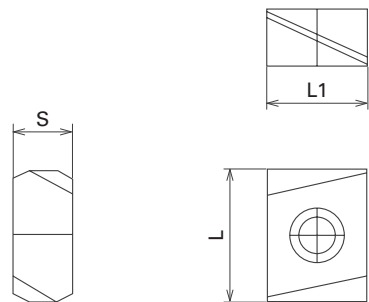
Order No.	D	L	L1	S/T	Insert Screw	Insert	Fig No.
GMR-3290FR14	32	110	38	22.5	CS50-130	FR140510.10	Fig.1
GMR-3275FR14	32	110	38	22.5	CS50-130	FR140510.10	Fig.2
GMR-3255LN19	32	110	38	22.5	CS50-130	LNCS19148	Fig.3
GMR-3200YW19	32	110	38	22.5	CS45-130	YWL19614	Fig.4
GMR-4290FR17	42	155	60	38	CS50-130	FR170610.10	Fig.1
GMR-4275FR17	42	155	60	38	CS50-130	FR170610.10	Fig.2
GMR-4255LN25	42	155	60	38	CS50-130	LNCS25189	Fig.3
GMR-4200YW19	42	155	60	38	CS45-130	YWL19614	Fig.4

Max Bore Micro Cartridges Inserts



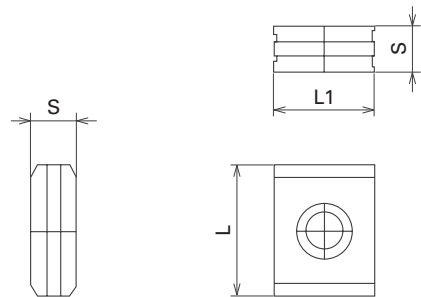
MEDIUM & FINISHING

Order No.	L	S	r	Screw	P		M	K
FR140510.10	14.5	5	1	GS50-130	GP910	GP925	GM525	GK310
FR170610.10	17.5	6	1	GS50-130	GP910	GP925	GM525	GK310



ROUGHING

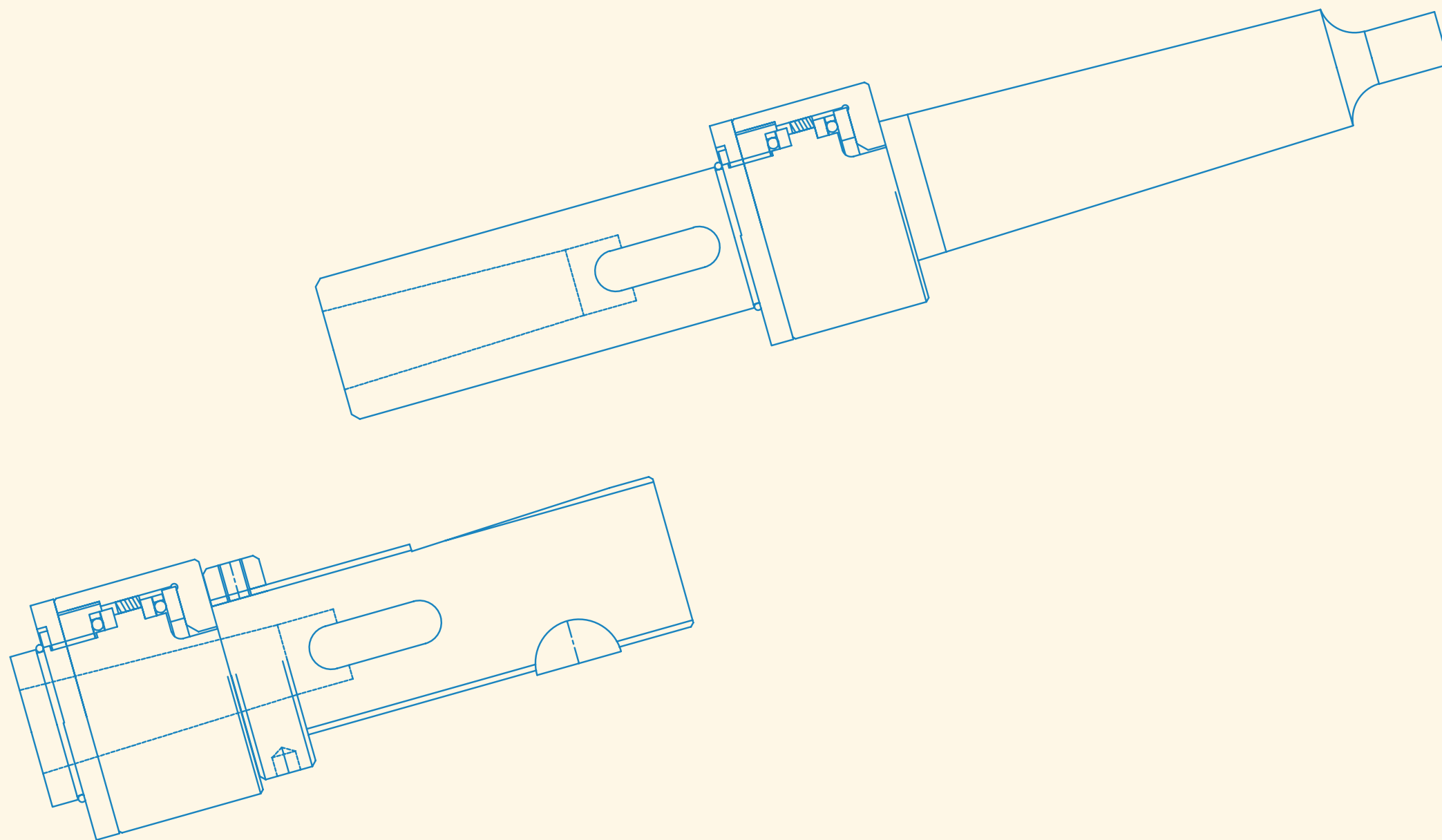
Order No.	L	L1	S	Screw	P		M	K
LNCS19148	19.05	14.5	8.5	GS50-130	GP925	GP935	GM525	GK325
LNCS25189	25.4	18	10	GS50-130	GP925	GP935	GM525	GK325



FINE FINISHING

Order No.	L	L1	S	Screw	P		M	K
YWL19614	19.05	U.5	6.35	GS50-130	GPC200	GPC250		GKC100

04 FLOATING REAMER HOLDERS & AUTO BACK FACING TOOLS



MT - MY TYPE



MT - ER TYPE



Tr - MT TYPE



Tr - MT LONG TYPE



WD - ER TYPE

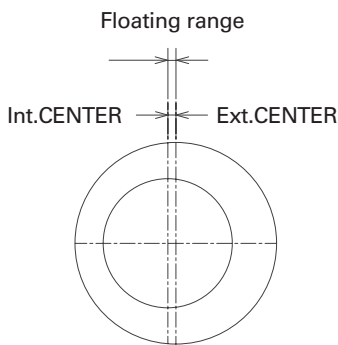
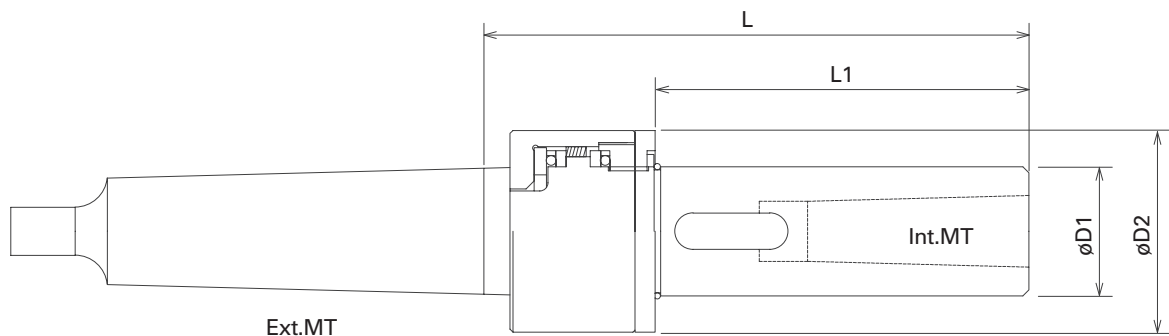


AUTO BACK FACING TOOLS



FLOATING REAMER HOLDERS

MT - MY TYPE

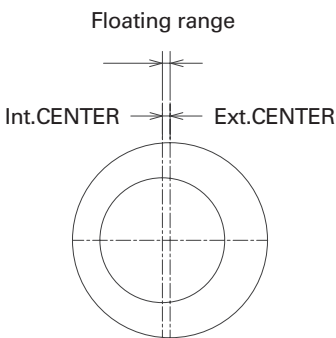
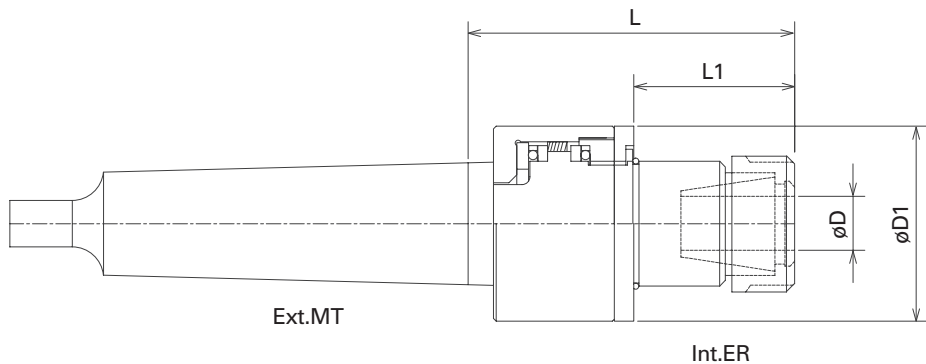


* Allow a tool to remain parallel with the existing drilled hole. * Your solution for solving reaming problem with reamers.

No.	Order No.	Length		Dia. (Ø)		External	Internal	
		L	L1	D1	D2	M/T No.	M/T No.	
1	GFHMT2-MT1	127	74	18	40	MT2	MT1	0.4-0.6
2	GFHMT2-MT2	127	90	18	40	MT2	MT2	0.4-0.6
3	GFHMT3-MT2	155	90	26	50	MT3	MT2	0.4-0.6
4	GFHMT3-MT3	155	110	26	50	MT3	MT3	0.8-1.0
5	GFHMT4-MT3	185	110	32	70	MT4	MT3	0.8-1.0
6	GFHMT4-MT4	185	135	42	70	MT4	MT4	0.9-1.2

FLOATING REAMER HOLDERS

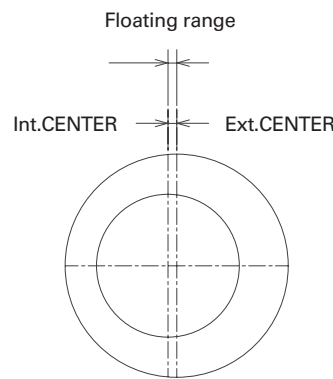
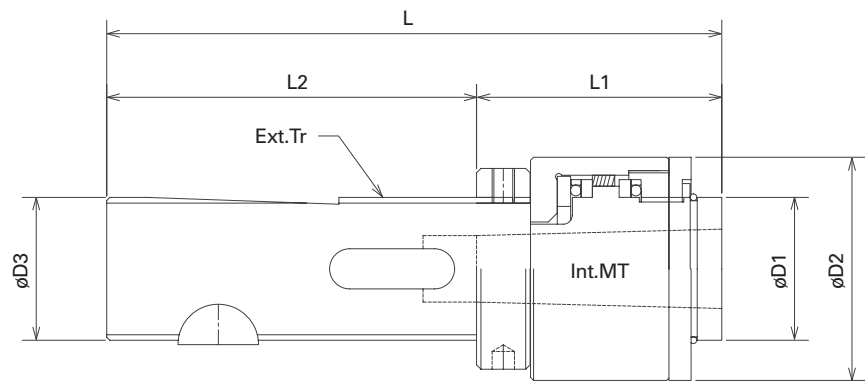
MT - ER TYPE



* Allow a tool to remain parallel with the existing drilled hole. * Your solution for solving reaming problem with reamers.

No.	Order No.	Length		Dia. (Ø)		External	Internal	
		L	L1	D	D1	M/T No.	ER No.	
1	GFHMT2-ER20	86	44	D5~13	40	MT2	ER20	0.4-0.6
2	GFHMT2-ER25	86	44	D6~16	40	MT2	ER25	0.4-0.6
3	GFHMT3-ER25	100	58	D6~16	50	MT3	ER25	0.4-0.6
4	GFHMT3-ER32	100	58	D6~20	50	MT3	ER32	0.8-1.0
5	GFHMT4-ER32	120	65	D6~20	70	MT4	ER32	0.9-1.2
6	GFHMT4-ER40	120	65	D6~26	70	MT4	ER40	0.9-1.2

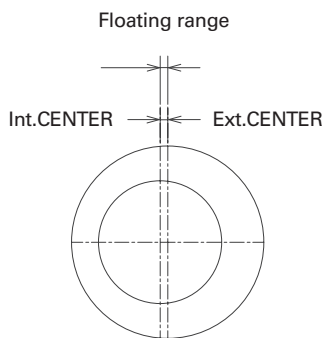
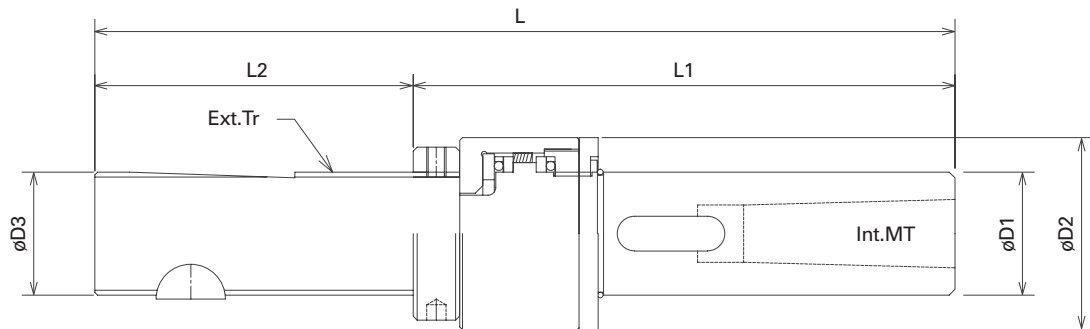
FLOATING REAMER HOLDERS
Tr - MT TYPE



* Allow a tool to remain parallel with the existing drilled hole. * Your solution for solving reaming problem with reamers.

No.	Order No.	Length			Dia. (Ø)		External (Ø)	Internal	
		L	L1	L2	D1	D2	D3	M/T No.	
1	GFHTr28-MT1	130	50	80	26	40	Tr28	MT1	0.4-0.6
2	GFHTr28-MT2	135	55	80	32	50	Tr28	MT2	0.4-0.6
3	GFHTr36-MT2	150	55	95	32	50	Tr36	MT2	0.4-0.6
4	GFHTr36-MT3	160	65	95	42	70	Tr36	MT3	0.8-1.0
5	GFHTr48-MT3	180	70	110	42	70	Tr48	MT3	0.8-1.0
6	GFHTr48-MT4	185	75	110	42	70	Tr48	MT4	0.9-1.2

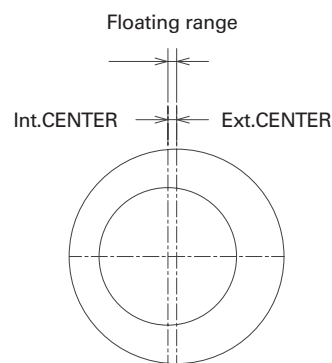
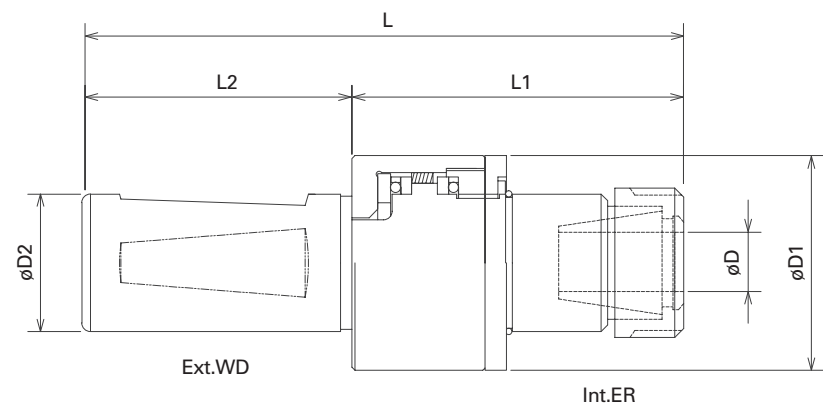
FLOATING REAMER HOLDERS
Tr - MT LONG TYPE



* Allow a tool to remain parallel with the existing drilled hole. * Your solution for solving reaming problem with reamers.

No.	Order No.	Length			Dia. (Ø)		External (Ø)	Internal	
		L	L1	L2	D1	D2	D3	M/T No.	
1	GFHTr28-MT1P	175	115	60	26	40	Tr28	MT1	0.5
2	GFHTr28-MT2P	195	135	60	32	50	Tr28	MT2	0.5
3	GFHTr36-MT2P	215	135	80	32	50	Tr36	MT2	0.5
4	GFHTr36-MT3P	240	160	80	42	70	Tr36	MT3	1.0

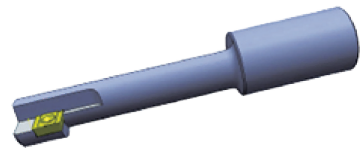
FLOATING REAMER HOLDERS
WD - ER TYPE



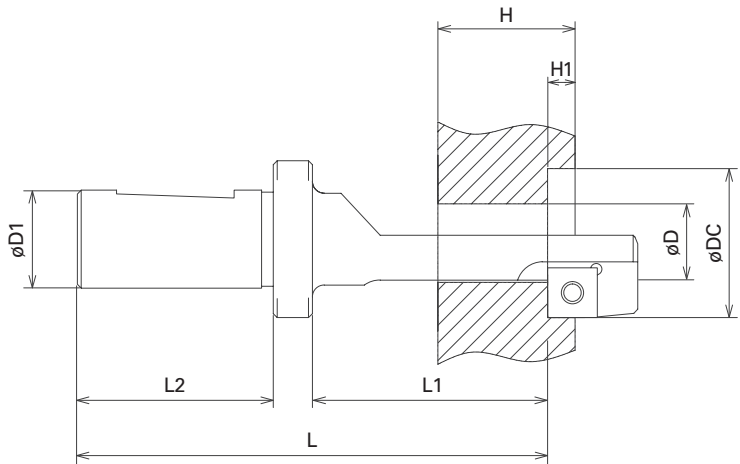
* Allow a tool to remain parallel with the existing drilled hole. * Your solution for solving reaming problem with reamers.

No.	Order No.	Length			Dia. (Ø)		External (Ø)	Internal	
		L	L1	L2	D	D1	D2	ER No.	
1	GFHWD20-ER20	140	80	60	D5~13	40	WD20	ER20	0.20-0.35
2	GFHWD20-ER25	140	80	60	D6~16	40	WD20	ER25	0.20-0.35
3	GFHWD25-ER20	160	90	70	D5~13	50	WD25	ER20	0.4-0.6
4	GFHWD25-ER25	160	90	70	D6~16	50	WD25	ER25	0.4-0.6
5	GFHWD32-ER25	165	90	75	D6~16	50	WD32	ER25	0.4-0.6
6	GFHWD32-ER32	195	120	75	D6~20	70	WD32	ER32	0.4-0.6
7	GFHWD40-ER32	195	120	75	D6~20	70	WD40	ER32	0.6-0.8
8	GFHWD40-ER40	195	120	75	D8~26	70	WD40	ER40	0.6-0.8

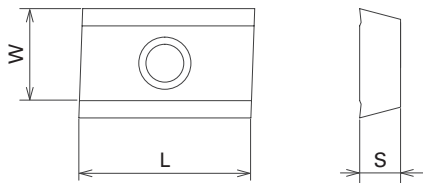
AUTO BACK FACING TOOLS



- Auto-back facing tools made on request
- Ordering Procedure (The following information are required)
 - Bore diameter and Counter bore diameter.
 - Working length of the tool or workpiece height.
 - Workpiece material.

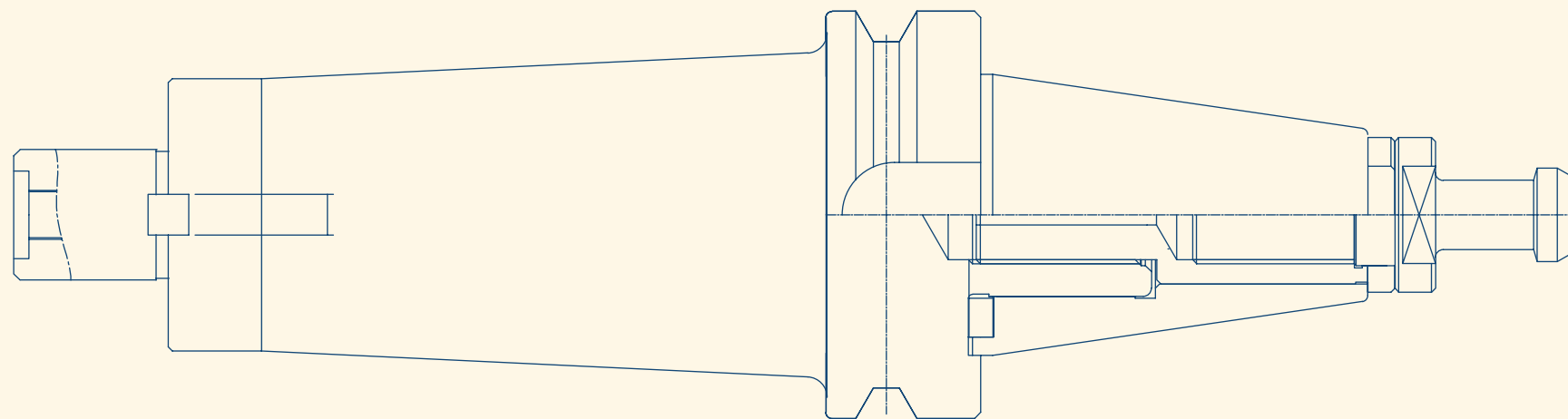
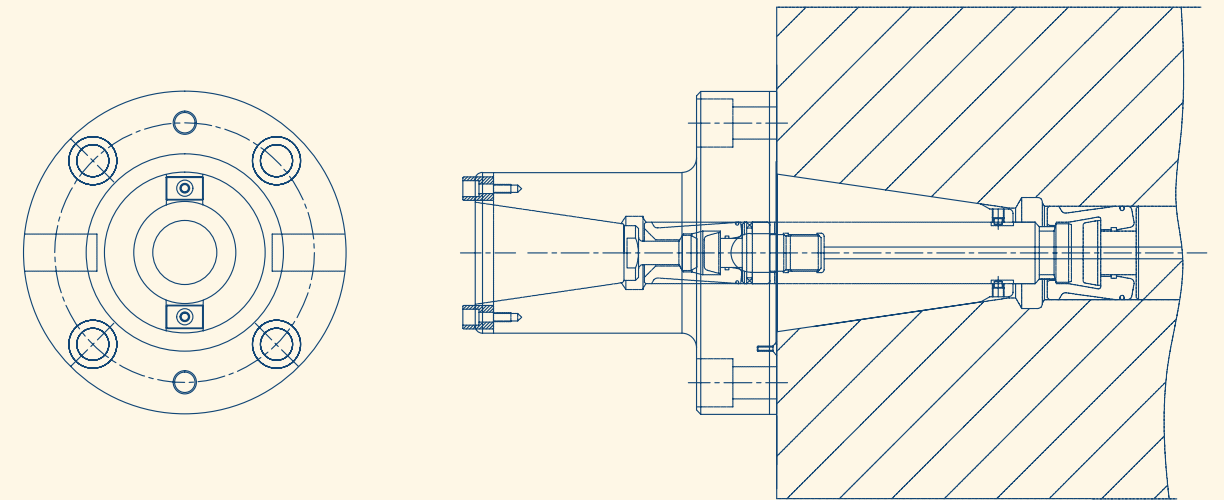


No.	D	DC	D1	L	L1	L2	H	H1
1								



									PARTS
					P	•	•		Screw 
					M		•		
					K			•	
Insert	L	W	S	R	GSL515	GSS715	GCI915		
15H9X060204	6.35	6.35	2.38	0.4	◦	◦	◦		GS92432
15H9X070304	7.94	7.94	3.18	0.4	◦	◦	◦		GS92432
15H9X090304	9.53	9.53	3.18	0.4	◦	◦	◦		GS91924
15H9X120404	12.70	12.7	4.76	0.4	◦	◦	◦		GS91916
15H9X150504	15.88	15.88	5.95	0.4	◦	◦	◦		GS92433
15H9X190504	19.00	15.88	5.95	0.4	◦	◦	◦		GS92433
15H9X210504	21.00	15.88	5.95	0.4	◦	◦	◦		GS92433
15H9X230504	23.00	15.88	5.95	0.4	◦	◦	◦		GS92433
15H9X250504	25.00	15.88	5.95	0.4	◦	◦	◦		GS92433

05 DOUBLE CONTACT SYSTEMS & AUTO REDUCERS



ISO.DIN SHANK TAPER & FLANGE DOUBLE CONTACT SYSTEMS



TAPER & FLANGE DOUBLE CONTACT SYSTEMS FACE ARBORS



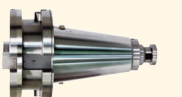
ISO.DIN 50 TAPER & FLANGE DOUBLE CONTACT SYSTEM SHELL MILL ARBORS



TAPER & FLANGE DOUBLE CONTACT SYSTEMS FACE ARBORS



AUTO REDUCERS



SEMI-AUTO REDUCERS



MANUAL REDUCERS

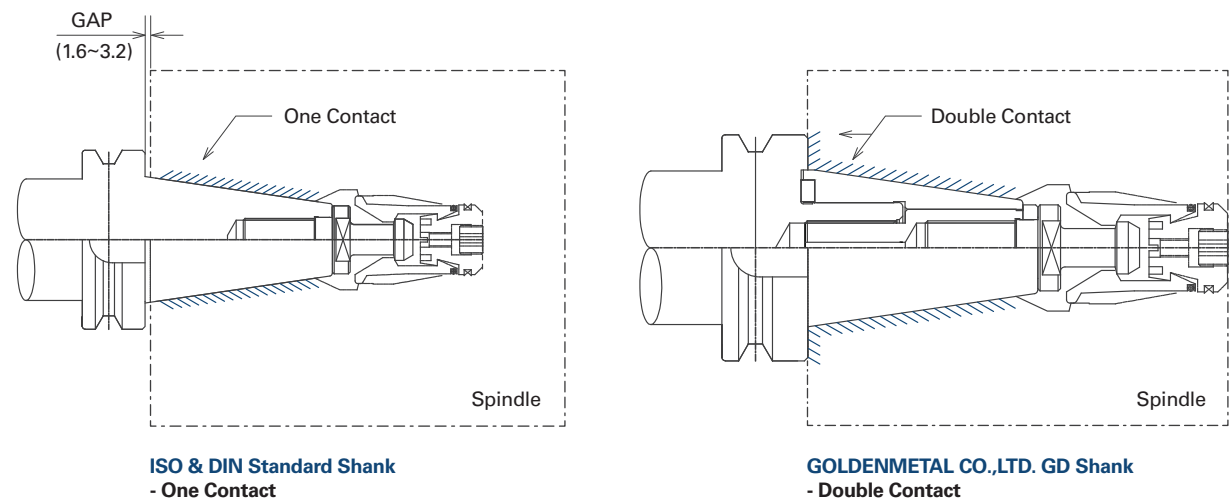


GMT-AI-C



DOUBLE CONTACT SYSTEMS

ISO.DIN SHANK TAPER &
FLANGE DOUBLE CONTACT SYSTEMS



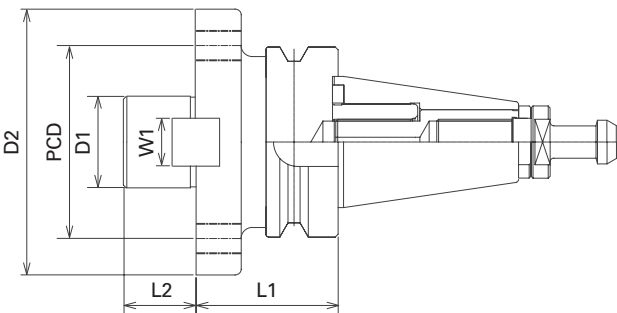
STANDARD		GOLDENMETAL	
ISO & DIN		DOUBLE CONTACT	
BT30	ISO	GDBT30	
BT40		GDBT40	
BT50		GDBT50	
SK30	DIN	GDSK30	
SK40		GDSK40	
SK50		GDSK50	

Merits of The GOLDENMETAL GD Shank (Double Contact) Systems

- GD Shank has a 2 surface contact, the face and upper cone contact as Gab is eliminated between the holder taper and spindle taper.
 - This gives higher rigidity, static and dynamic stiffness, improved Surface finishes, Increased tool Life as well as reduce carbonized corrosion crused by vibration in heavy cutting.
- All these features allow the system for higher speeds than the conventional Steep taper tooling.
 - Improved repeatability in **A.T.C (0.002)**.
 - Improved Axial stability and Eliminated GAP between the HolderTaper and SpindleTaper in HighSpeed Machining (RPM;40000).

DOUBLE CONTACT SYSTEMS

TAPER & FLANGE DOUBLE CONTACT
SYSTEMS FACEARBORS



METRIC TYPE

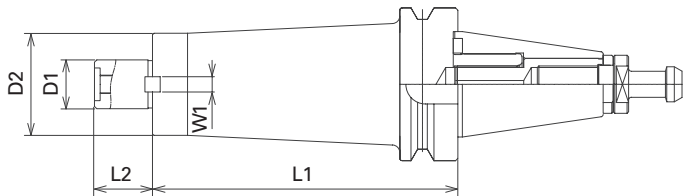
Taper		Order No.	L1	L2	D2	PCD	D1	W 1	Cutter Dia.
BT50 ISO	FMB40	GDBT50-FMB40-75	75	26	80	66.7	40	15.9	160
		GDBT50-FMB40-90	90						
		GDBT50-FMB40-105	105						
		GDBT50-FMB40-150	150						
		GDBT50-FMB40-200	200						
		GDBT50-FMB40-250	250						
	FMB60	GDBT50-FMB60-75	75	26	130	101.6	60	25.4	200~315
		GDBT50-FMB60-105	105						
		GDBT50-FMB60-150	150						
		GDBT50-FMB60-200	200						
GDBT50-FMB60-250		250							
SK50 DIN69871	FMB40	GDSK50-FMB40-75	75	26	80	66.7	40	15.9	160
		GDSK50-FMB40-90	90						
		GDSK50-FMB40-105	105						
		GDSK50-FMB40-150	150						
		GDSK50-FMB40-200	200						
		GDSK50-FMB40-250	250						
	FMB60	GDSK50-FMB60-75	75	26	130	101.6	60	25.4	200~315
		GDSK50-FMB60-105	105						
		GDSK50-FMB60-150	150						
		GDSK50-FMB60-200	200						
GDSK50-FMB60-250		250							

INCH TYPE

Taper		Order No.	L1	L2	D2	PCD	D1	W 1	Cutter Dia.
BT50 ISO	FMB38.1	GDBT50-FMB38.1-75	75	26	80	66.7	38.1	15.9	160
		GDBT50-FMB38.1-90	90						
		GDBT50-FMB38.1-105	105						
		GDBT50-FMB38.1-150	150						
		GDBT50-FMB38.1-200	200						
		GDBT50-FMB38.1-250	250						
	FMB50.8	GDBT50-FMB50.8-75	75	26	130	101.6	50.8	25.4	200~315
		GDBT50-FMB50.8-105	105						
		GDBT50-FMB50.8-150	150						
		GDBT50-FMB50.8-200	200						
		GDBT50-FMB50.8-250	250						
		SK50 DIN69871	FMB38.1						
GDSK50-FMB38.1-90	90								
GDSK50-FMB38.1-105	105								
GDSK50-FMB38.1-150	150								
GDSK50-FMB38.1-200	200								
GDSK50-FMB38.1-250	250								
FMB50.8	GDSK50-FMB50.8-75		75	26	130	101.6	50.8	25.4	200~315
	GDSK50-FMB50.8-105		105						
	GDSK50-FMB50.8-150		150						
	GDSK50-FMB50.8-200		200						
	GDSK50-FMB50.8-250		250						

DOUBLE CONTACT SYSTEMS

ISO.DIN 50 TAPER & FLANGE DOUBLE CONTACT SYSTEM SHELL MILL ARBORS



METRIC TYPE

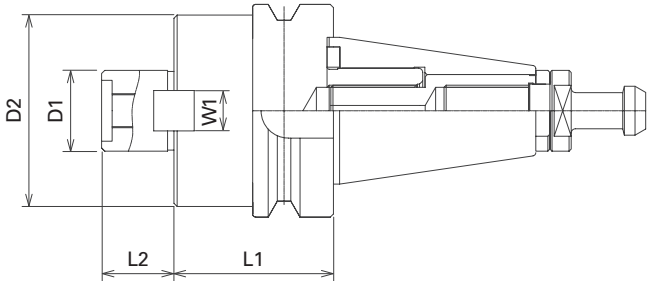
Taper	Order No.	L1	L2	D2	D1	W1	Cutter Dia.
BT50 ISO	GDBT50-SMB27-105	105	36	50	27	10	75
	GDBT50-SMB27-150	150					
	GDBT50-SMB27-200	200					
	GDBT50-SMB27-250	250					
	GDBT50-SMB32-105	105	38	60	32	10	100
	GDBT50-SMB32-150	150					
	GDBT50-SMB32-200	200					
	GDBT50-SMB32-250	250					
	GDBT50-SMB40-105	105	38	80	40	12	125
	GDBT50-SMB40-150	150					
SK50 DIN69871	GDBT50-SMB40-200	200					
	GDBT50-SMB40-250	250					
	GDSK50-SMB27-105	105	36	50	27	10	75
	GDSK50-SMB27-150	150					
	GDSK50-SMB27-200	200					
	GDSK50-SMB27-250	250					
	GDSK50-SMB32-105	105	38	60	32	10	100
	GDSK50-SMB32-150	150					
	GDSK50-SMB32-200	200					
	GDSK50-SMB32-250	250					
	GDSK50-SMB40-105	105	38	80	40	12	125
	GDSK50-SMB40-150	150					
	GDSK50-SMB40-200	200					
	GDSK50-SMB40-250	250					

INCH TYPE

Taper	Order No.	L1	L2	D2	D1	W1	Cutter Dia.
BT50 ISO	GDBT50-SMB25.4-105	105	36	50	33	25.4	75
	GDBT50-SMB25.4-105	150					
	GDBT50-SMB25.4-200	200					
	GDBT50-SMB25.4-250	250					
	GDBT50-SMB31.75-105	105	38	60	40	31.75	100
	GDBT50-SMB31.75-150	150					
	GDBT50-SMB31.75-200	200					
	GDBT50-SMB31.75-250	250					
	GDBT50-SMB38.1-105	105	38	80	50	38.1	125
	GDBT50-SMB38.1-150	150					
SK50 DIN69871	GDBT50-SMB38.1-200	200					
	GDBT50-SMB38.1-250	250					
	GDBT50-SMB25.4-105	105	36	50	33	25.4	75
	GDBT50-SMB25.4-105	150					
	GDBT50-SMB25.4-200	200					
	GDBT50-SMB25.4-250	250					
	GDBT50-SMB31.75-105	105	38	60	40	31.75	100
	GDBT50-SMB31.75-150	150					
	GDBT50-SMB31.75-200	200					
	GDBT50-SMB31.75-250	250					
	GDBT50-SMB38.1-105	105	38	80	50	38.1	125
	GDBT50-SMB38.1-150	150					
	GDBT50-SMB38.1-200	200					
	GDBT50-SMB38.1-250	250					

DOUBLE CONTACT SYSTEMS

TAPER & FLANGE DOUBLE CONTACT SYSTEMS FACE ARBORS



METRIC TYPE

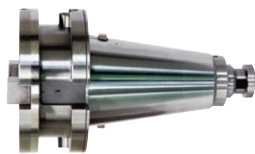
Taper	Order No.	L1	L2	D2	D1	W1	Cutter Dia.
BT50 ISO	GDBT50FMB27-075	75	26	80	27	12	80~100
	GDBT50FMB27-105	105					
	GDBT50FMB27-150	150					
	GDBT50FMB27-200	200					
	GDBT50FMB27-250	250					
	GDBT50FMB27-300	300					
	GDBT50FMB40-75	75	26	85	40	15.9	125~150
	GDBT50FMB40-105	105					
	GDBT50FMB40-150	150					
	GDBT50FMB40-200	200					
SK50 DIN69871	GDBT50FMB40-250	250	26	80	27	12	80~100
	GDSK50FMB27-75	75					
	GDSK50FMB27-105	105					
	GDSK50FMB27-150	150					
	GDSK50FMB27-200	200					
	GDSK50FMB27-250	250					
	GDSK50FMB27-300	300	26	85	40	15.9	125~150
	GDSK50FMB40-75	75					
	GDSK50FMB40-105	105					
	GDSK50FMB40-150	150					
	GDSK50FMB40-200	200	26	85	40	15.9	125~150
	GDSK50FMB40-250	250					

INCH TYPE

Taper	Order No.	L1	L2	D2	D1	W1	Cutter Dia.
BT50 ISO	GDBT50FMB25.4-075	75	26	80	25.4	12	80~100
	GDBT50FMB25.4-105	105					
	GDBT50FMB25.4-150	150					
	GDBT50FMB25.4-200	200					
	GDBT50FMB25.4-250	250					
	GDBT50FMB25.4-300	300					
	GDBT50FMB38.1-75	75	26	85	38.1	15.9	125~150
	GDBT50FMB38.1-105	105					
	GDBT50FMB38.1-150	150					
	GDBT50FMB38.1-200	200					
SK50 DIN69871	GDBT50FMB38.1-250	250	26	80	25.4	12	80~100
	GDSK50FMB25.4-75	75					
	GDSK50FMB25.4-105	105					
	GDSK50FMB25.4-150	150					
	GDSK50FMB25.4-200	200					
	GDSK50FMB25.4-250	250					
	GDSK50FMB25.4-300	300	26	85	38.1	15.9	125~150
	GDSK50FMB38.1-75	75					
	GDSK50FMB38.1-105	105					
	GDSK50FMB38.1-150	150					
	GDSK50FMB38.1-200	200	26	85	38.1	15.9	125~150
	GDSK50FMB38.1-250	250					

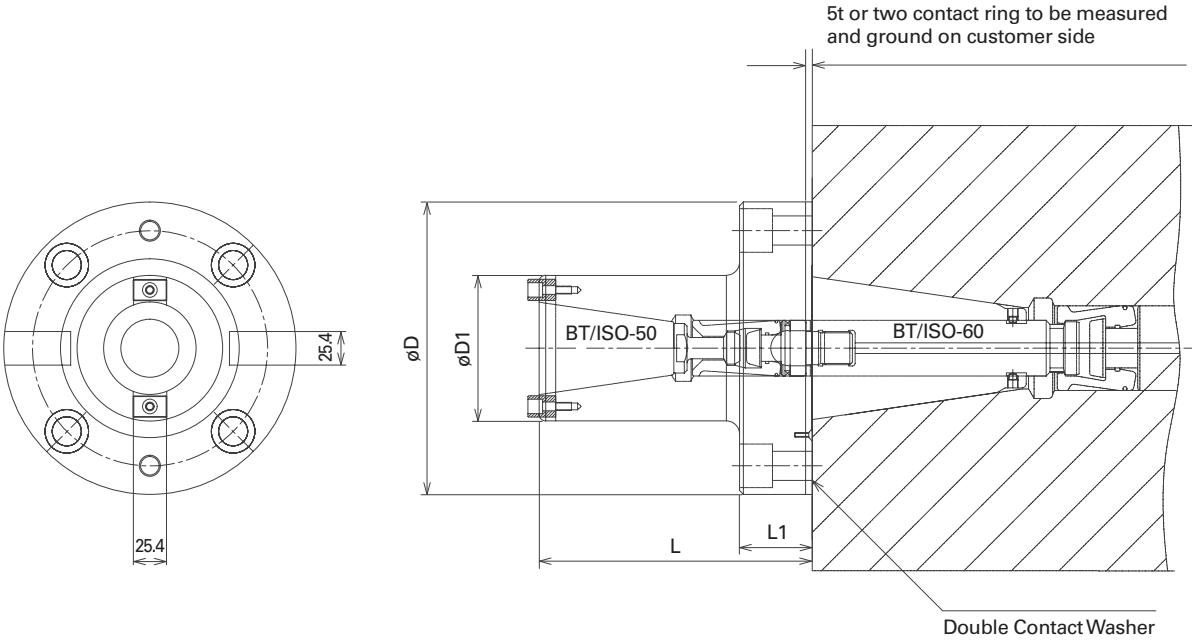
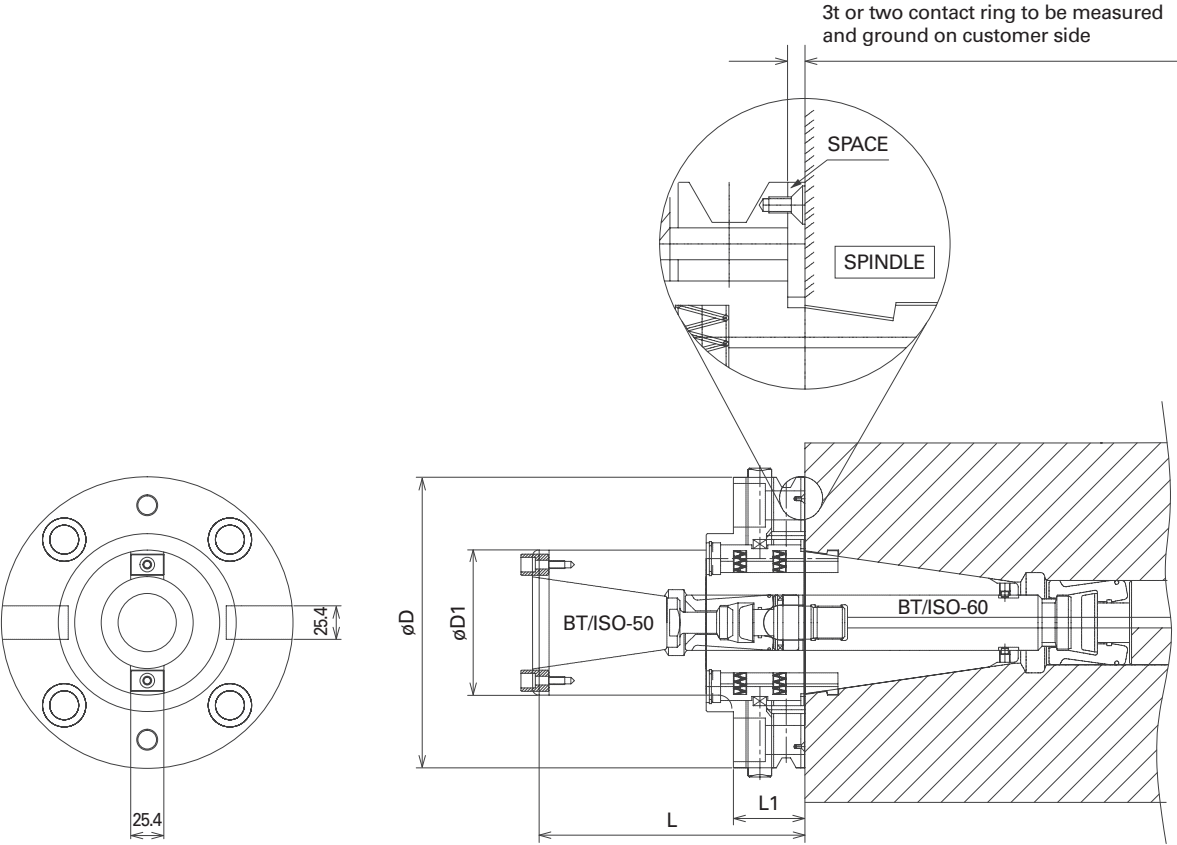
AUTO REDUCERS

AUTO REDUCERS



AUTO REDUCERS

SEMI-AUTO REDUCERS



* Arbor is assembled at half time as manual competition. * It is very convenient for use. * Special product on request.

No.	Order No. (BT)	Order No. (ISO)	Length		Dia.	
			L	L1	D	D1
1	ARD60BT50110D75M	ARD60ISO50110D75M	75	55	110	221
2	ARD60BT50110D100M	ARD60ISO50110D100M	100	55	110	221
3	ARD60BT50110D150M	ARD60ISO50110D150M	150	55	110	221
4	ARD60BT50110D200M	ARD60ISO50110D200M	200	55	110	221
5	ARD60BT50110D250M	ARD60ISO50110D250M	250	55	110	221

• Prior to order, check the weight for auto reducer more than 300mm length.

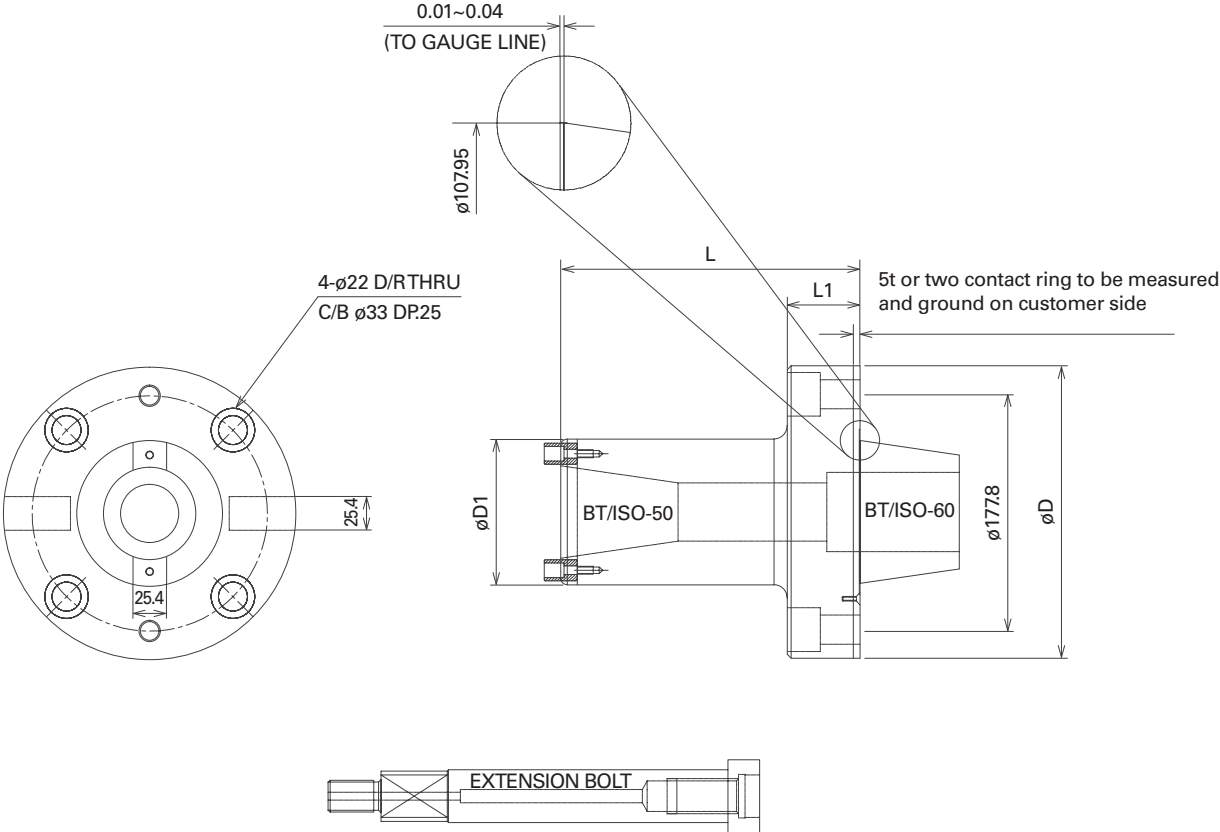
* Arbor is assembled at half time as manual competition. * It is very convenient for use. * Special product on request.

No.	Order No. (BT)	Order No. (ISO)	Length		Dia.	
			L	L1	D	D1
1	ARDS60BT50110D075M	ARDS60ISO50110D075M	75	55	110	221
2	ARDS60BT50110D100M	ARDS60ISO50110D100M	100	55	110	221
3	ARDS60BT50110D150M	ARDS60ISO50110D150M	150	55	110	221
4	ARDS60BT50110D200M	ARDS60ISO50110D200M	200	55	110	221
5	ARDS60BT50110D250M	ARDS60ISO50110D250M	250	55	110	221
6	ARDS60BT50110D500M	ARDS60ISO50110D500M	500	55	110	221
7	ARDS60BT50110D750M	ARDS60ISO50110D750M	750	55	110	221

AUTO REDUCERS
MANUAL REDUCERS



06 APPLICATIONS



No.	Taper	Reducer Order No.	Bolt Order No.	Length		Dia.	
				L	L1	D	D1
1	BT	RD60BT50110D500M	RB55M24-600M	500	55	110	221
2		RD60BT50110D750M	RB55M24-850M	750	55	110	221
3	ISO	RD60ISO50110D500M	RB55M24-600M	500	55	110	221
4		RD60ISO50110D750M	RB55M24-850M	750	55	110	221

SHIPBUILDING SPECIAL TOOL'G SYSTEMS

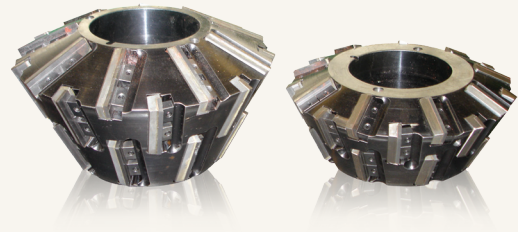
AUTOMOTIVE ENGINE SPECIAL TOOL'G SYSTEMS

SHIPBUILDING SPECIAL TOOL'G SYSTEMS

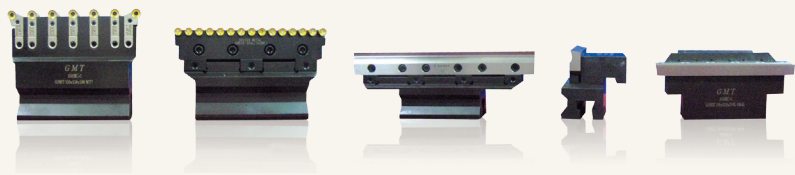
LOW SPEED CRANK THROW



LOW SPEED BED PLATE & FRAME BOX



LOW SPEED CRANK SHAFT

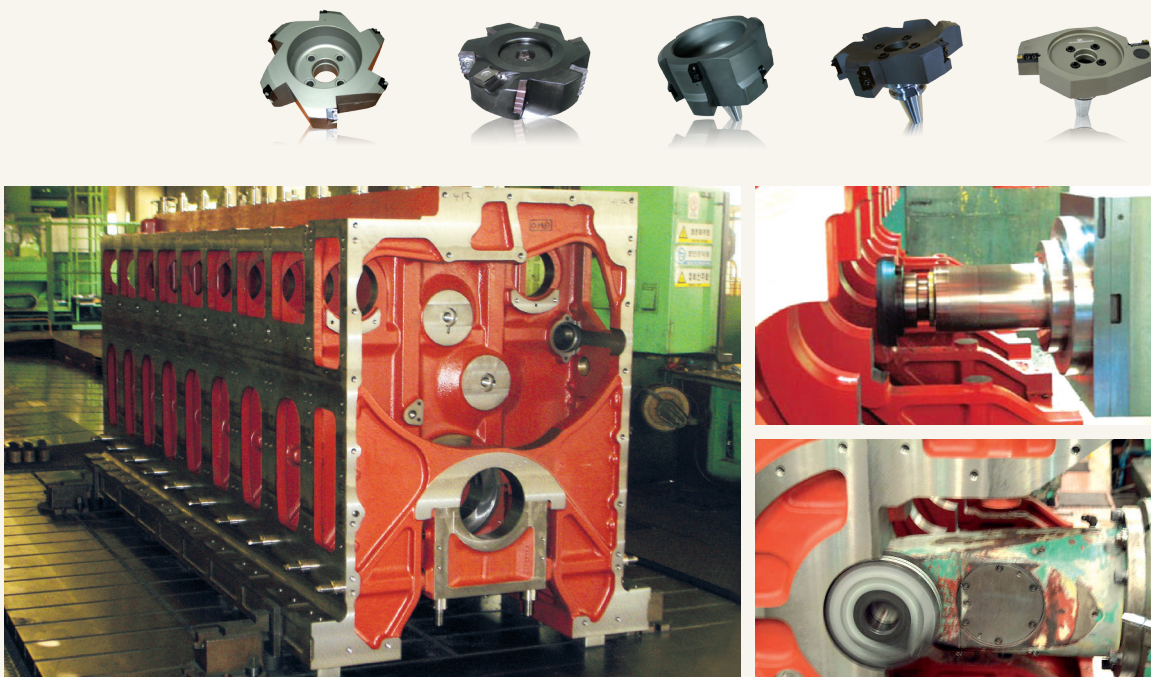


LOW SPEED CONNECTING ROAD

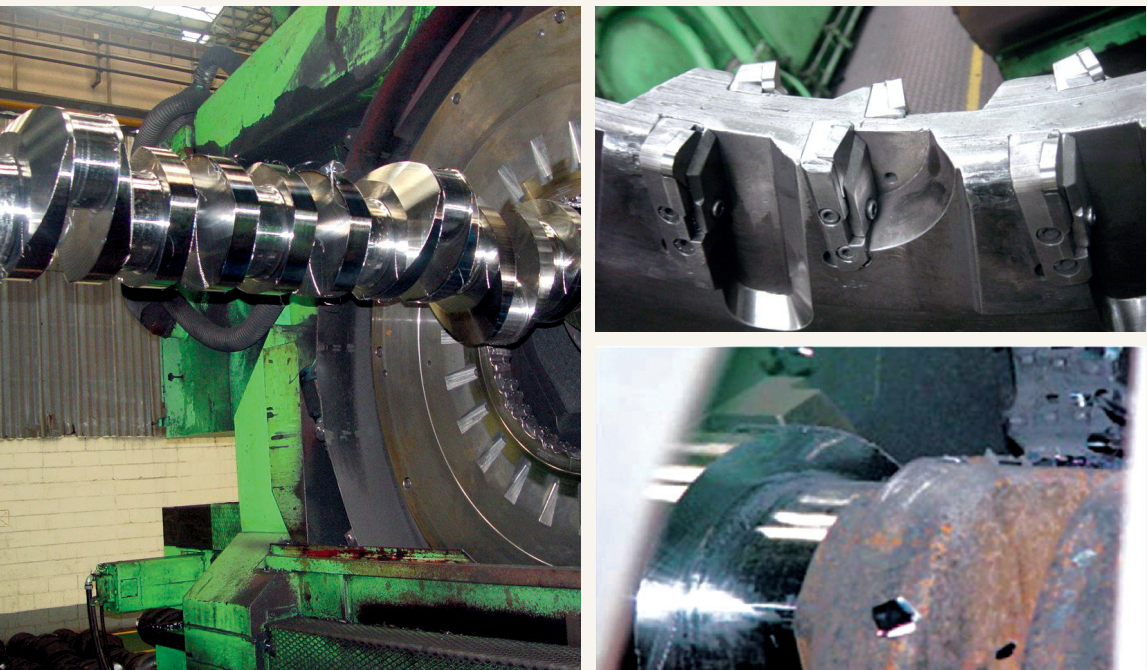


SHIPBUILDING SPECIAL TOOL'G SYSTEMS

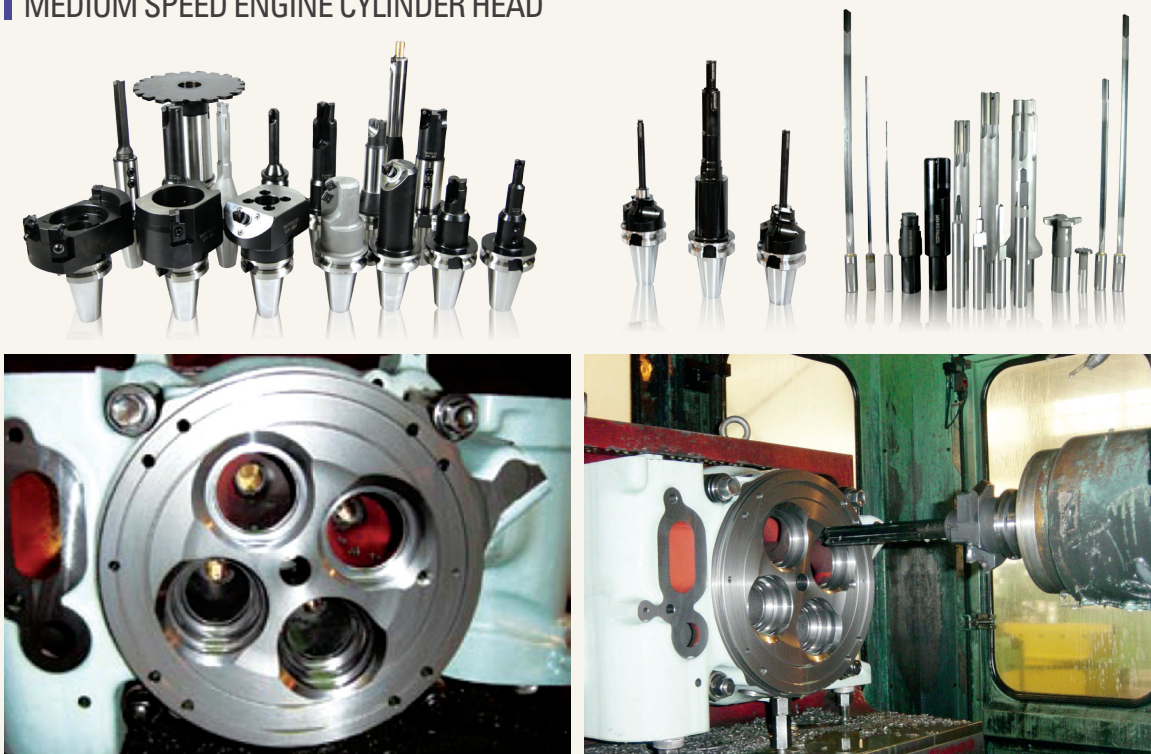
MEDIUM SPEED ENGINE CYLINDER FRAME



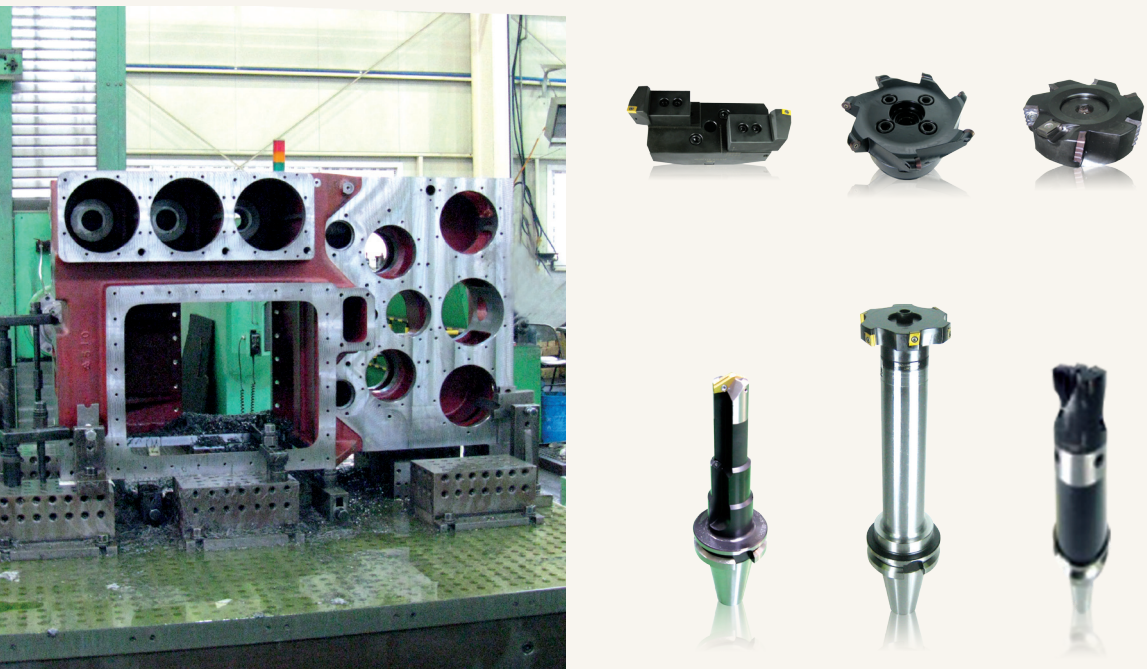
MEDIUM SPEED ENGINE CRANK SHAFT



MEDIUM SPEED ENGINE CYLINDER HEAD



MEDIUM SPEED ENGINE CRANK SHAFT



AUTOMOTIVE ENGINE SPECIAL TOOL'G SYSTEMS

ENGINE BOLCKS



CYLINDER HEADS



TRANSMISSION HOUSING

