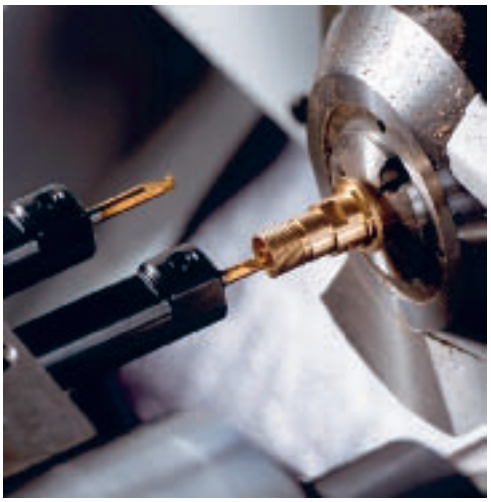
CoroTurn® XS

For internal small part machining

Minimum bore diameter 0.3 mm

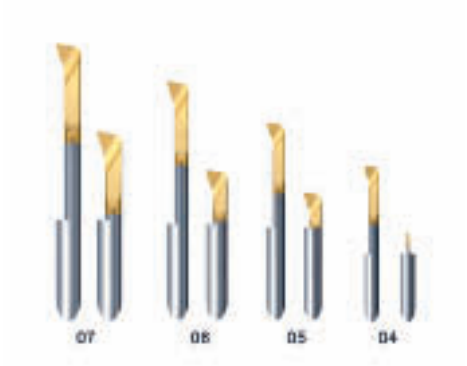
Guaranteed precision in internal turning, grooving and threading of small bores

CoroTurn XS has an insert in the form of a carbide rod mounted in the holder. Intended for precision machining in hole diameters 0.3 -12 mm. Extremely sharp cutting edges for good results at low feeds.



CoroTurn® XS tooling

The system consists of tool holders and inserts. Tool holders are available as bars, Coromant Capto adaptors and square shank holders and the inserts in the well proven grade GC1025.
Use for:
- Turning
- Turning/profiling
- Grooving
- Face grooving
- Profiling full radius
- Pre-parting
- Threading



Inserts versions

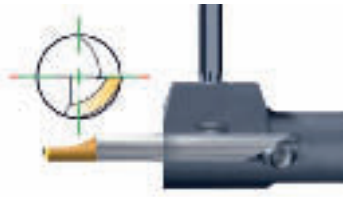
The programme consists of four different insert sizes
A long clamping length ensures excellent stability.

CoroTurn XS coolant supply

The boring bars are designed with internal coolant supply and are available as both single and double ended to optimise the use of your machine.

Accuracy

The insert locates precisely into the boring bar thanks to a locating pin which locks the insert into the correct orientation.
Precise positioning and repeatable accuracy of the cutting edge is guaranteed with every set-up.



Blanks for grinding

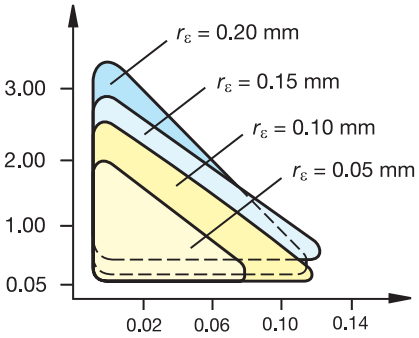
Insert blanks for "do-it-yourself" grinding are available allowing modification of the insert for any machining operation.

Practical hints

Turning

- Start by using a low feed to ensure insert security and surface finish, increase feed to improve chip breaking.
- Run with a cutting depth larger than the nose radius. This will minimise the radial deflection of the insert, important in internal machining.
- Too low cutting speed will result in inadequate tool life. Always run with the highest possible revolutions per minute (rpm) when machining small bores.

Depth of cut (a_p), mm



Cutting speed

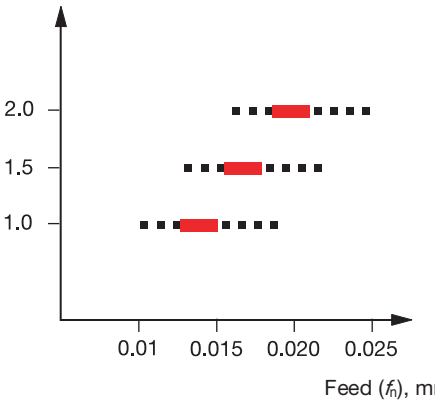
P	M	N	S
60-200	60-180	90-400	20-50

Grade GC1025, (v_c) m/min

Grooving

- Start by using a low feed to ensure insert security and surface finish, increase feed to improve chip breaking.
- Choose the shortest possible insert length to minimise the risk of vibration and always choose the largest possible insert diameter.
- Too low cutting speed will result in inadequate tool life. Always run with the highest possible revolutions per minute (rpm) when machining small bores.

Insert width (l_a), mm



Cutting speed

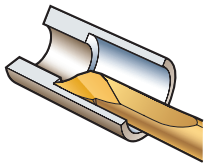
P	M	N	S
60-200	60-180	90-400	20-50

Grade GC1025, (v_c) m/min

= Recommended starting value

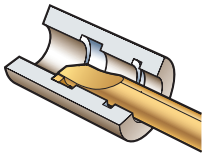
First choice recommendation

Internal turning



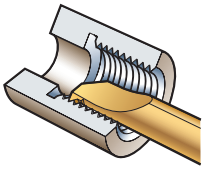
Insert: CXS-04T098-10-2209R 1025
Holder: CXS-A22-04
Material: low alloy steel
v_c m/min: 100
a_p mm: 0.15
f_n mm/rev: 0.08

Internal grooving



Insert: CXS-04G100-4220R 1025
Holder: CXS-A22-04
Material: low alloy steel
v_c m/min: 100
f_n mm/rev: 0.015

Internal threading



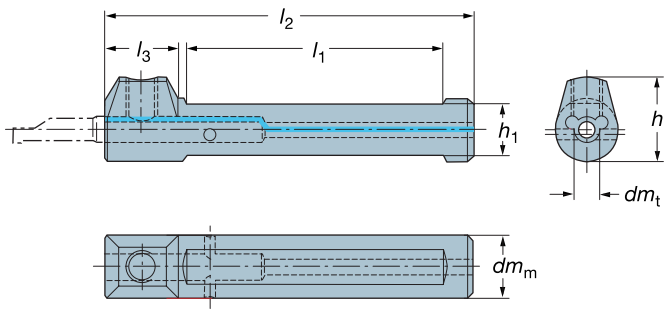
Insert: CXS-04TH050VM-4215R 1025
Holder: CXS-A22-04
Material: low alloy steel
v_c m/min: 100
nap: 7

For more specific cutting data, see pages F12

Boring bars

Turning, profiling, grooving and threading

CoroTurn® XS



With internal coolant supply

Machine type	Insert size[2]	Ordering code	Dimensions, mm (inch) dm_m	dm_t	h	h_1	l_1	l_2	l_3	Nm[1]
Citizen	04	**CXS-A0750-04**	19.05 (3/4)	4	20.0	18	90	110	14	3.0
	05	**CXS-A0750-05**	19.05 (3/4)	5	20.0	18	90	110	14	3.0
	06	**CXS-A0750-06**	19.05 (3/4)	6	22.0	18	90	110	14	3.0
	07	**CXS-A0750-07**	19.05 (3/4)	7	22.0	18	90	110	14	3.0
	04	**CXS-A1000-04**	25.40 (1)	4	25.4	23	90	110	14	3.0
	05	**CXS-A1000-05**	25.40 (1)	5	25.4	23	90	110	14	3.0
	06	**CXS-A1000-06**	25.40 (1)	6	25.4	23	90	110	14	3.0
	07	**CXS-A1000-07**	25.40 (1)	7	25.4	23	90	110	14	3.0
Star	04	**CXS-A22-04**	22.00	4	20.0	18	90	110	14	3.0
	05	**CXS-A22-05**	22.00	5	20.0	18	90	110	14	3.0
	06	**CXS-A22-06**	22.00	6	20.0	18	90	110	14	3.0
	07	**CXS-A22-07**	22.00	7	20.0	18	90	110	14	3.0
Nomura	04	**CXS-A23-04**	23.00	4	23.0	21	90	110	14	3.0
	05	**CXS-A23-05**	23.00	5	23.0	21	90	110	14	3.0
	06	**CXS-A23-06**	23.00	6	23.0	21	90	110	14	3.0
	07	**CXS-A23-07**	23.00	7	23.0	21	90	110	14	3.0
Tsugami/Miyano	04	**CXS-A25-04**	25.00	4	25.0	23	90	110	14	3.0
	05	**CXS-A25-05**	25.00	5	25.0	23	90	110	14	3.0
	06	**CXS-A25-06**	25.00	6	25.0	23	90	110	14	3.0
	07	**CXS-A25-07**	25.00	7	25.0	23	90	110	14	3.0
Other	04	**CXS-A10-04**	10.00	4	14.5	8	45	65	14	3.0
	05	**CXS-A10-05**	10.00	5	15.0	8	45	65	14	3.0
	04	**CXS-A12-04**	12.00	4	15.5	10	50	70	14	3.0
	05	**CXS-A12-05**	12.00	5	16.0	10	50	70	14	3.0
	06	**CXS-A12-06**	12.00	6	16.5	10	50	70	14	3.0
	04	**CXS-A0500-04**	12.70 (1/2)	4	15.5	10	45	70	14	3.0
	05	**CXS-A0500-05**	12.70 (1/2)	5	16.0	10	45	70	14	3.0
	06	**CXS-A0500-06**	12.70 (1/2)	6	16.5	10	45	70	14	3.0
	04	**CXS-A0625-04**	15.90 (5/8)	4	17.5	14	55	75	14	3.0
	05	**CXS-A0625-05**	15.90 (5/8)	5	18.0	14	55	75	14	3.0
	06	**CXS-A0625-06**	15.90 (5/8)	6	18.5	14	55	75	14	3.0
	07	**CXS-A0625-07**	15.90 (5/8)	7	19.0	14	55	75	14	3.0
	04	**CXS-A16-04**	16.00	4	17.5	14	55	75	14	3.0
	05	**CXS-A16-05**	16.00	5	18.0	14	55	75	14	3.0
	06	**CXS-A16-06**	16.00	6	18.5	14	55	75	14	3.0
	07	**CXS-A16-07**	16.00	7	19.0	14	55	75	14	3.0
	04	**CXS-A20-04**	20.00	4	20.0	18	70	90	14	3.0
	05	**CXS-A20-05**	20.00	5	20.0	18	70	90	14	3.0
	06	**CXS-A20-06**	20.00	6	22.0	18	70	90	14	3.0
	07	**CXS-A20-07**	20.00	7	22.0	18	70	90	14	3.0

1) Insert tightening torque Nm.

2) To correspond with insert size on insert

Main spare parts

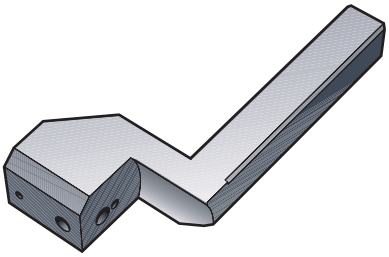
Insert screw	Key (Torx Plus)
5514 013-01	5680 049-01 (15IP)

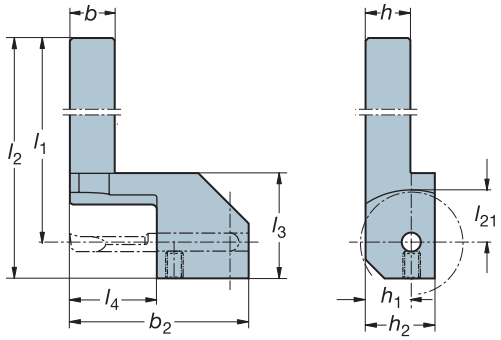
C20

Shank holder for internal machining in sliding head machines

Turning, profiling, grooving and threading

CoroTurn® XS





Left hand style shown

Insert size[1]	Ordering code	Dimensions, mm b	b_2	h	h_1	h_2	l_1	l_2	l_3	l_4	l_{21}	Nm[2]
04	CXS-1010-04R/L	10	36.5	10	10	16	89	99	29.0	18	13	3.0
	CXS-1212-04R/L	12	48	12	12	18	89	99	29.0	23	13	3.0
05	CXS-1010-05R/L	10	36.5	10	10	16	89	99	29.0	18	13	3.0
	CXS-1212-05R/L	12	48	12	12	18	89	99	29.0	23	13	3.0
	CXS-1616-05R/L	16	53	16	16	22	94	104	34.0	28	18	3.0
06	CXS-1010-06R/L	10	36.5	10	10	16	89	99	29.0	18	13	3.0
	CXS-1212-06R/L	12	48	12	12	18	89	99	29.0	23	13	3.0
	CXS-1616-06R/L	16	53	16	16	22	94	104	34.0	28	18	3.0

[1] To correspond with insert size on insert
[2] Insert tightening torque Nm.

R = Right hand, L = Left hand

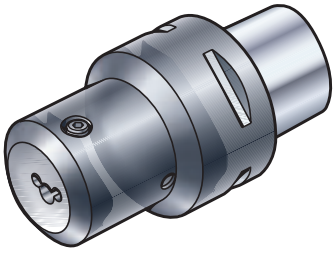
Main spare parts

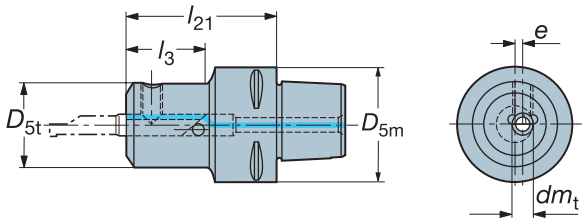
Insert screw	Key (Torx Plus)
5514 013-01	5680 049-01 (15IP)

Coromant Capto®

For turning and rotating applications

CoroTurn® XS





Insert size[1]	Ordering code	Dimensions, mm dm_t	D_{5m}	D_{5t}	e	l_3	l_{21}	Nm[2]
04	C4-CXS-47-04	4	40	21	1	22	47	3.0
05	C4-CXS-47-05	5	40	22	1	22	47	3.0
06	C4-CXS-47-06	6	40	23.5	1	22	47	3.0
07	C4-CXS-47-07	7	40	25	1	22	47	3.0

[1] To correspond with insert size on insert
[2] Insert tightening torque Nm.

Main spare parts

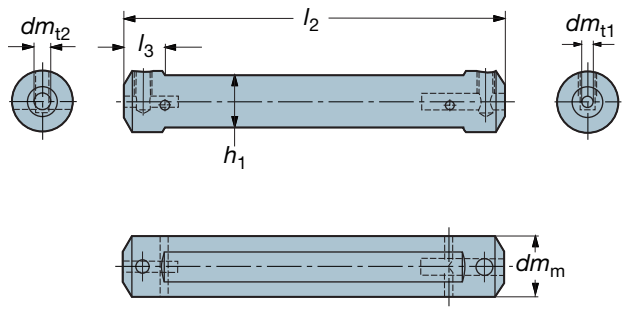
Insert screw	Key (Torx Plus)
5514 013-01	5680 049-01 (15IP)

C20

Double ended boring bar

Turning, profiling, grooving and threading

CoroTurn® XS



Machine type	Insert size[1] Main spindle	Sub spindle	**Ordering code**	**Dimensions, mm** dm_m	dm_{t1}	dm_{t2}	h_1	l_2	l_3	Nm[2]
Citizen	04	06	**CXS-A075-04-06**	19.05	4	6	19	140	15	3.0
	04	06	**CXS-A20-04-06**	20	4	6	19	140	15	3.0
Star	04	04	**CXS-A22-04-04**	22	4	4	19	140	15	3.0
Star	04	06	**CXS-A22-04-06**	22	4	6	19	140	15	3.0
Star	06	06	**CXS-A22-06-06**	22	6	6	19	140	15	3.0
Tsugami	04	06	**CXS-A25-04-06**	25	4	6	19	140	15	3.0
Traub	04	06	**CXS-A28-04-06**	28	4	6	19	140	15	3.0

1) To correspond with insert size on insert

2) Insert tightening torque Nm.

Main spare parts

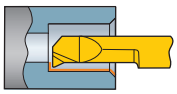
Screw	Key (Torx Plus)
5514 013-01	5680 049-01 (15IP)

C20

CoroTurn® XS inserts

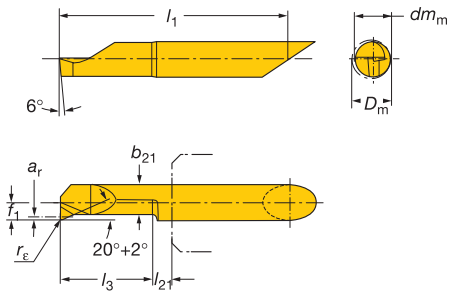
Turning

Entering angle: 90°



Tolerances, mm:
r_ε ±0.02
l_1 ±0.02
Centre height: +0.05/-0

CXS-..T090



	Insert size[1]		Selection criteria, mm			Dimensions, mm					P	M	N	S
											GC	GC	GC	GC
	dm_m	Ordering code	a_r max	D_m min	l_3	r_ε	b_{21}	f_1	l_1	l_{21}	1025	1025	1025	1025
	04	CXS-04T090-15-3212R	0.20	3.2	12.0	0.15	2.55	1.45	29.26	3	★	★	★	★
		CXS-04T090-15-4215R/L	0.30	4.2	15.0	0.15	3.45	1.95	39.26	3	★	★	★	★
	05	CXS-05T090-20-5210R/L	0.50	5.2	10.0	0.20	4.20	2.45	32.25	3	★	★	★	★
		CXS-05T090-20-5215R/L	0.50	5.2	15.0	0.20	4.20	2.45	37.25	3	★	★	★	★
		CXS-05T090-20-5220R/L	0.50	5.2	20.0	0.20	4.20	2.45	42.25	3	★	★	★	★
											P25	M15	N15	S15

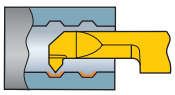
[1] To correspond with insert size on holder.

R = Right hand, L = Left hand

★= First choice

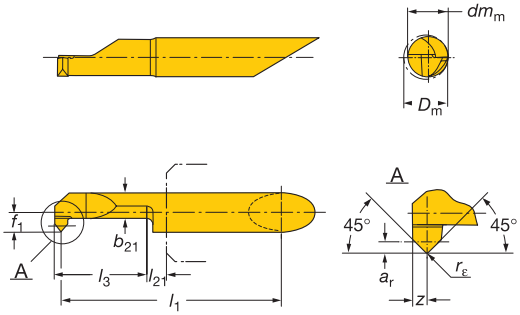
Turning/profiling

Entering angle: 45°



Tolerances, mm:
r_ε= ±0.02
l_1= ±0.02
Centre height: +0.05/-0

CXS-..T045

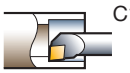


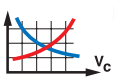
	Insert size[1]		Selection criteria, mm			Dimensions, mm						P		M		N		S	
												GC	-	GC	-	GC	-	GC	-
	dm_m	Ordering code	a_r max	D_m min	l_3	r_ε	b_{21}	f_1	l_1	l_{21}	z	1025	H10F	1025	H10F	1025	H10F	1025	H10F
	05	CXS-05T045-20-5215R	0.70	5.2	15.0	0.20	3.75	2.45	37.25	3	1.0	★	☆	★	☆	★	☆	★	☆
		CXS-05T045-20-5220R/L	0.70	5.2	20.0	0.20	3.75	2.45	42.25	3	1.0	★		★		★		★	
	06	CXS-06T045-20-6220R	0.70	6.2	20.0	0.20	3.95	2.95	42.25	3	1.0	★		★		★		★	
		CXS-06T045-20-6225R/L	0.70	6.2	25.0	0.20	3.95	2.95	47.25	3	1.0	★		★		★		★	
	07	CXS-07T045-20-7220R/L	0.70	7.2	20.0	0.20	4.25	3.45	62.25	3	1.0	★		★		★		★	
		CXS-07T045-20-7240R/L	0.70	7.2	40.0	0.20	4.25	3.45	62.25	3	1.0	★		★		★		★	
												P25	P15	M15	M20	N15	N15	S15	S15

[1] To correspond with insert size on holder.

R = Right hand, L = Left hand

★= First choice

 C17

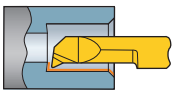
 F12

 G5

CoroTurn® XS inserts

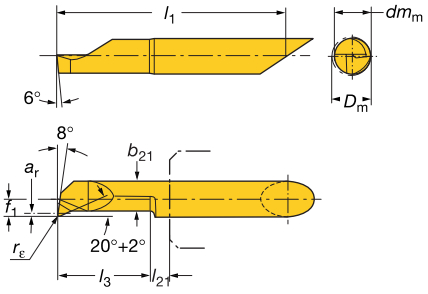
Turning

Entering angle: 98°



Tolerances, mm:
r_ε= ±0.02
l_1= ±0.02
Centre height: +0.05/-0

CXS-..T098



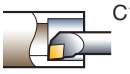
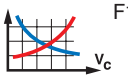
	Insert size[1]		Selection criteria, mm			Dimensions, mm					P		M		N		S	
											GC	-	GC	-	GC	-	GC	-
	dm_m	Ordering code	a_r max	D_m min	l_3	r_ε	b_{21}	f_1	l_1	l_{21}	1025	H10F	1025	H10F	1025	H10F	1025	H10F
	04	CXS-04T098-00-0301R	0.06	0.3	1.2	0.00	0.19	0.10	27.25	11.8	★		★		★		★	
		CXS-04T098-00-0401R	0.07	0.4	1.6	0.00	0.28	0.15	27.25	11.4	★		★		★		★	
		CXS-04T098-00-0502R	0.08	0.5	2.0	0.00	0.37	0.20	27.25	11	★		★		★		★	
		CXS-04T098-00-0602R	0.09	0.6	2.5	0.00	0.46	0.25	27.25	10.5	★		★		★		★	
		CXS-04T098-00-0703R	0.10	0.7	3.5	0.00	0.55	0.30	27.25	9.5	★		★		★		★	
		CXS-04T098-00-0804R	0.10	0.8	4.0	0.00	0.64	0.35	27.25	9	★		★		★		★	
		CXS-04T098-00-0905R	0.10	0.9	5.0	0.00	0.73	0.40	27.25	8	★		★		★		★	
		CXS-04T098-05-1004R	0.10	1.0	4.0	0.05	0.65	0.45	26.25	8	★		★		★		★	
		CXS-04T098-05-1006R	0.10	1.0	6.0	0.05	0.65	0.45	26.25	6	★		★		★		★	
		CXS-04T098-05-1706R	0.20	1.7	6.0	0.05	1.05	0.70	26.25	6	★		★		★		★	
		CXS-04T098-05-1709R	0.20	1.7	9.0	0.05	1.05	0.70	26.25	3	★		★		★		★	
		CXS-04T098-05-2206R	0.20	2.2	6.0	0.05	1.55	0.95	26.25	6	★		★		★		★	
		CXS-04T098-05-2209R	0.20	2.2	9.0	0.05	1.55	0.95	26.25	3	★		★		★		★	
		CXS-04T098-05-2710R	0.20	2.7	10.0	0.05	2.05	1.20	27.25	3	★		★		★		★	
		CXS-04T098-05-2715R	0.20	2.7	15.0	0.05	2.05	1.20	32.25	3	★		★		★		★	
		CXS-04T098-05-3215R	0.20	3.2	15.0	0.05	2.55	1.45	32.25	3	★		★		★		★	
		CXS-04T098-05-3220R	0.20	3.2	20.0	0.05	2.55	1.45	37.25	3	★		★		★		★	
		CXS-04T098-05-4215R	0.30	4.2	15.0	0.05	3.45	1.95	32.25	3	★		★		★		★	
		CXS-04T098-05-4220R	0.30	4.2	20.0	0.05	3.45	1.95	37.25	3	★		★		★		★	
		CXS-04T098-05-4225R	0.30	4.2	25.0	0.05	3.45	1.95	42.25	3	★		★		★		★	
		CXS-04T098-10-1004L	0.10	1.0	4.0	0.10	0.65	0.45	27.25	9	★		★		★		★	
		CXS-04T098-10-1004R	0.10	1.0	4.0	0.10	0.65	0.45	27.25	9	★	☆	★	☆	★	☆	★	☆
		CXS-04T098-10-1006R	0.10	1.0	6.0	0.10	0.65	0.45	27.25	7	★	☆	★	☆	★	☆	★	☆
		CXS-04T098-10-1706L	0.20	1.7	6.0	0.10	1.05	0.70	27.25	7	★		★		★		★	
		CXS-04T098-10-1706R	0.20	1.7	6.0	0.10	1.05	0.70	27.25	7	★	☆	★	☆	★	☆	★	☆
		CXS-04T098-10-1709R/L	0.20	1.7	9.0	0.10	1.05	0.70	27.25	4	★		★		★		★	
		CXS-04T098-10-2206R/L	0.20	2.2	6.0	0.10	1.55	0.95	27.25	7	★		★		★		★	
		CXS-04T098-10-2209L	0.20	2.2	9.0	0.10	1.55	0.95	27.25	4	★		★		★		★	
		CXS-04T098-10-2209R	0.20	2.2	9.0	0.10	1.55	0.95	27.25	4	★	☆	★	☆	★	☆	★	☆
		CXS-04T098-10-2213R/L	0.20	2.2	13.0	0.10	1.55	0.95	32.35	5	★		★		★		★	
		CXS-04T098-15-2710L	0.20	2.7	10.0	0.15	2.05	1.20	27.25	3	★		★		★		★	
		CXS-04T098-15-2710R	0.20	2.7	10.0	0.15	2.05	1.20	27.25	3	★	☆	★	☆	★	☆	★	☆
		CXS-04T098-15-2715R/L	0.20	2.7	15.0	0.15	2.05	1.20	32.35	3	★		★		★		★	
		CXS-04T098-15-3210L	0.20	3.2	10.0	0.15	2.55	1.45	27.25	3	★		★		★		★	
		CXS-04T098-15-3210R	0.20	3.2	10.0	0.15	2.55	1.45	27.25	3	★	☆	★	☆	★	☆	★	☆
		CXS-04T098-15-3215R/L	0.20	3.2	15.0	0.15	2.55	1.45	32.25	3	★		★		★		★	
		CXS-04T098-15-3220R/L	0.20	3.2	20.0	0.15	2.55	1.45	37.25	3	★		★		★		★	
		CXS-04T098-15-4210R/L	0.30	4.2	10.0	0.15	3.45	1.95	27.25	3	★		★		★		★	
		CXS-04T098-15-4215L	0.30	4.2	15.0	0.15	3.45	1.95	32.25	3	★		★		★		★	
		CXS-04T098-15-4215R	0.30	4.2	15.0	0.15	3.45	1.95	32.25	3	★	☆	★	☆	★	☆	★	☆
		CXS-04T098-15-4220R/L	0.30	4.2	20.0	0.15	3.45	1.95	37.25	3	★		★		★		★	
		CXS-04T098-15-4225R/L	0.30	4.2	25.0	0.15	3.45	1.95	42.25	3	★		★		★		★	
											P25	P15	M15	M20	N15	N15	S15	S15

[1] To correspond with insert size on holder.

R = Right hand, L = Left hand

★= First choice

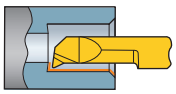
Continued

 C17  F12 GC G5

CoroTurn® XS inserts

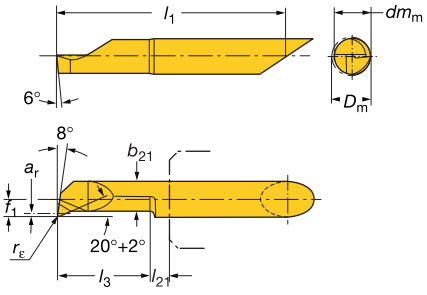
Turning

Entering angle: 98°



Tolerances, mm:
r_ε= ±0.02
l_1= ±0.02
Centre height: +0.05/-0

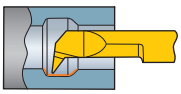
CXS-..T098



Copying

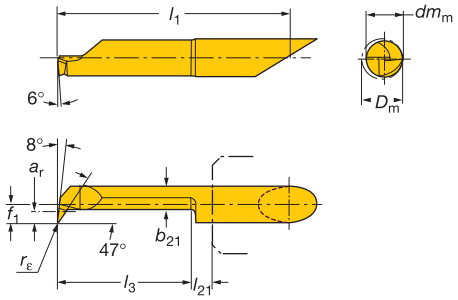
Insert with extended f_1 dimension

Entering angle: 98°



Tolerances, mm:
r_ε= ±0.02
l_1= ±0.02
Centre height: +0.05/-0

CXS-..TE98 Copying



Turning	Insert size[1]		Selection criteria, mm			Dimensions, mm					P		M		N		S	
											GC	-	GC	-	GC	-	GC	-
	dm_m	**Ordering code**	a_r max	D_m min	l_3	r_ε	b_{21}	f_1	l_1	l_{21}	1025	H10F	1025	H10F	1025	H10F	1025	H10F
	05	**CXS-05T098-05-5220R**	0.50	5.2	20.0	0.05	4.25	2.45	42.25	3	★		★		★		★	
		CXS-05T098-05-5230R	0.50	5.2	30.0	0.05	4.25	2.45	52.25	3	★		★		★		★	
		CXS-05T098-20-5210R/L	0.50	5.2	10.0	0.20	4.25	2.45	32.25	3	★		★		★		★	
		CXS-05T098-20-5220R/L	0.50	5.2	20.0	0.20	4.25	2.45	42.25	3	★		★		★		★	
		CXS-05T098-20-5225R/L	0.50	5.2	25.0	0.20	4.25	2.45	47.25	3	★		★		★		★	
		CXS-05T098-20-5230R/L	0.50	5.2	30.0	0.20	4.25	2.45	52.25	3	★		★		★		★	
	06	**CXS-06T098-20-6215R/L**	0.50	6.2	15.0	0.20	5.25	2.95	37.25	3	★		★		★		★	
		CXS-06T098-20-6220L	0.50	6.2	20.0	0.20	5.25	2.95	42.25	3	★		★		★		★	
		CXS-06T098-20-6220R	0.50	6.2	20.0	0.20	5.25	2.95	42.25	3	★	☆	★	☆	★	☆	★	☆
		CXS-06T098-20-6225R/L	0.50	6.2	25.0	0.20	5.25	2.95	47.25	3	★		★		★		★	
		CXS-06T098-20-6230R/L	0.50	6.2	30.0	0.20	5.25	2.95	52.25	3	★		★		★		★	
		CXS-06T098-20-6235R/L	0.50	6.2	35.0	0.20	5.25	2.95	52.25	3	★		★		★		★	
		CXS-06T098-20-6240R	0.50	6.2	40.0	0.20	5.25	2.95	62.25	3	★		★		★		★	
	07	**CXS-07T098-20-7225L**	0.50	7.2	25.0	0.20	6.25	3.45	47.25	3	★		★		★		★	
		CXS-07T098-20-7225R	0.50	7.2	25.0	0.20	6.25	3.45	47.25	3	★	☆	★	☆	★	☆	★	☆
		CXS-07T098-20-7230R	0.50	7.2	30.0	0.20	6.25	3.45	52.25	3	★		★		★		★	
		CXS-07T098-20-7240R/L	0.50	7.2	40.0	0.20	6.25	3.45	62.25	3	★		★		★		★	
		CXS-07T098-20-7245R/L	0.50	7.2	45.0	0.20	6.25	3.45	67.25	3	★		★		★		★	
		CXS-07T098-20-7250R	0.50	7.2	50.0	0.20	6.25	3.45	72.25	3	★		★		★		★	
											P25	P15	M15	M20	N15	N15	S15	S15

[1] To correspond with insert size on holder.

R = Right hand, L = Left hand

★= First choice

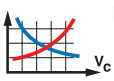
Copying	Insert size[1]		Selection criteria, mm			Dimensions, mm					P		M		N		S	
											GC	-	GC	-	GC	-	GC	-
	dm_m	**Ordering code**	a_r max	D_m min	l_3	r_ε	b_{21}	f_1	l_1	l_{21}	1025	H10F	1025	H10F	1025	H10F	1025	H10F
	04	**CXS-04TE98-15-422OL**	0.80	4.2	20.0	0.15	2.95	1.95	37.25	3	★		★		★		★	
		CXS-04TE98-15-422OR	0.80	4.2	20.0	0.15	2.95	1.95	37.25	3	★	☆	★	☆	★	☆	★	☆
	05	**CXS-05TE98-15-5225L**	1.00	5.2	25.0	0.15	3.75	2.45	47.25	3	★		★		★		★	
		CXS-05TE98-15-5225R	1.00	5.2	25.0	0.15	3.75	2.45	47.25	3	★	☆	★	☆	★	☆	★	☆
	06	**CXS-06TE98-15-6230L**	1.80	6.2	30.0	0.15	3.95	2.95	52.25	3	★		★		★		★	
		CXS-06TE98-15-6230R	1.80	6.2	30.0	0.15	3.95	2.95	52.25	3	★	☆	★	☆	★	☆	★	☆
											P25	P15	M15	M20	N15	N15	S15	S15

[1] To correspond with insert size on holder.

R = Right hand, L = Left hand

★= First choice


C17

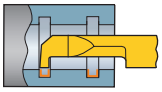


F12

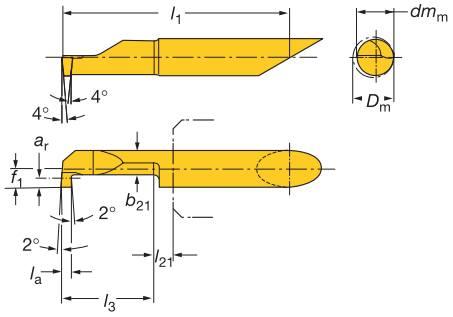
G5

CoroTurn® XS inserts

Grooving



CXS-..G

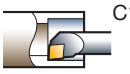
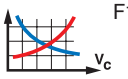


Tolerances, mm:
l_a= +0.05/-0
r_ε= ±0.02
l_1= ±0.02
Centre height:
+0.05/-0

	Insert size[1]		Selection criteria, mm				Dimensions, mm				P	M	N	S
											GC	GC	GC	GC
	dm_m	**Ordering code**	a_r max	D_m min	l_a	l_3	b_{21}	f_1	l_1	l_{21}	1025	1025	1025	1025
	04	CXS-04G078-4210R	0.80	4.2	0.78	10.0	2.95	1.95	27.40	3	★	★	★	★
		CXS-04G078-4215R/L	0.80	4.2	0.78	15.0	2.95	1.95	32.50	3	★	★	★	★
		CXS-04G078-4220R	0.80	4.2	0.78	20.0	2.95	1.95	37.60	3	★	★	★	★
		CXS-04G100-4210R/L	0.80	4.2	1.00	10.0	2.95	1.95	27.30	3	★	★	★	★
		CXS-04G100-4215R/L	0.80	4.2	1.00	15.0	2.95	1.95	32.30	3	★	★	★	★
		CXS-04G100-4220R/L	0.80	4.2	1.00	20.0	2.95	1.95	37.30	3	★	★	★	★
	05	CXS-05G078-5210R	1.00	5.2	0.78	10.0	3.75	2.45	32.40	3	★	★	★	★
		CXS-05G078-5220R/L	1.00	5.2	0.78	20.0	3.75	2.45	42.50	3	★	★	★	★
		CXS-05G078-5230R	1.00	5.2	0.78	30.0	3.75	2.45	52.70	3	★	★	★	★
		CXS-05G100-5210R	1.00	5.2	1.00	10.0	3.75	2.45	32.30	3	★	★	★	★
		CXS-05G100-5220R/L	1.00	5.2	1.00	20.0	3.75	2.45	42.30	3	★	★	★	★
		CXS-05G100-5230R	1.00	5.2	1.00	30.0	3.75	2.45	52.30	3	★	★	★	★
		CXS-05G117-5210R	1.00	5.2	1.17	10.0	3.75	2.45	32.40	3	★	★	★	★
		CXS-05G117-5220R/L	1.00	5.2	1.17	20.0	3.75	2.45	42.50	3	★	★	★	★
		CXS-05G117-5230R	1.00	5.2	1.17	30.0	3.75	2.45	52.70	3	★	★	★	★
		CXS-05G150-5210R	1.00	5.2	1.50	10.0	3.75	2.45	32.30	3	★	★	★	★
		CXS-05G150-5215R/L	1.00	5.2	1.50	15.0	3.75	2.45	37.30	3	★	★	★	★
		CXS-05G150-5220R/L	1.00	5.2	1.50	20.0	3.75	2.45	42.30	3	★	★	★	★
		CXS-05G150-5230R	1.00	5.2	1.50	30.0	3.75	2.45	52.30	3	★	★	★	★
		CXS-05G157-5210R	1.00	5.2	1.57	10.0	3.75	2.45	32.40	3	★	★	★	★
		CXS-05G157-5220R/L	1.00	5.2	1.57	20.0	3.75	2.45	42.50	3	★	★	★	★
		CXS-05G157-5230R	1.00	5.2	1.57	30.0	3.75	2.45	52.70	3	★	★	★	★
		CXS-05G198-5210R	1.00	5.2	1.98	10.0	3.75	2.45	32.40	3	★	★	★	★
		CXS-05G198-5220R/L	1.00	5.2	1.98	20.0	3.75	2.45	42.50	3	★	★	★	★
		CXS-05G198-5230R	1.00	5.2	1.98	30.0	3.75	2.45	52.70	3	★	★	★	★
		CXS-05G200-5210R	1.00	5.2	2.00	10.0	3.75	2.45	32.30	3	★	★	★	★
		CXS-05G200-5220R/L	1.00	5.2	2.00	20.0	3.75	2.45	42.30	3	★	★	★	★
		CXS-05G200-5230R	1.00	5.2	2.00	30.0	3.75	2.45	52.30	3	★	★	★	★
	06	CXS-06G078-6210R	1.80	6.2	0.78	10.0	3.95	2.95	32.40	3	★	★	★	★
		CXS-06G078-6215R/L	1.80	6.2	0.78	15.0	3.95	2.95	37.50	3	★	★	★	★
		CXS-06G078-6225R	1.80	6.2	0.78	25.0	3.95	2.95	47.60	3	★	★	★	★
		CXS-06G078-6235R/L	1.80	6.2	0.78	35.0	3.95	2.95	57.80	3	★	★	★	★
		CXS-06G100-6210R	1.80	6.2	1.00	10.0	3.95	2.95	32.30	3	★	★	★	★
		CXS-06G100-6215R/L	1.80	6.2	1.00	15.0	3.95	2.95	37.30	3	★	★	★	★
		CXS-06G100-6225R/L	1.80	6.2	1.00	25.0	3.95	2.95	47.30	3	★	★	★	★
		CXS-06G100-6235R	1.80	6.2	1.00	35.0	3.95	2.95	57.30	3	★	★	★	★
		CXS-06G117-6210R	1.80	6.2	1.17	10.0	3.95	2.95	32.40	3	★	★	★	★
		CXS-06G117-6215R/L	1.80	6.2	1.17	15.0	3.95	2.95	37.50	3	★	★	★	★
		CXS-06G117-6225R	1.80	6.2	1.17	25.0	3.95	2.95	47.60	3	★	★	★	★
		CXS-06G117-6235R/L	1.80	6.2	1.17	35.0	3.95	2.95	57.80	3	★	★	★	★
		CXS-06G150-6210R	1.80	6.2	1.50	10.0	3.95	2.95	32.30	3	★	★	★	★
		CXS-06G150-6215R/L	1.80	6.2	1.50	15.0	3.95	2.95	37.30	3	★	★	★	★
		CXS-06G150-6225R/L	1.80	6.2	1.50	25.0	3.95	2.95	47.30	3	★	★	★	★
		CXS-06G150-6235R	1.80	6.2	1.50	35.0	3.95	2.95	57.30	3	★	★	★	★
											P25	M15	N15	S15

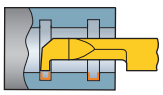
[1] To correspond with insert size on holder.

R = Right hand, L = Left hand
★= First choice
Continued

 C17  F12 GC G5

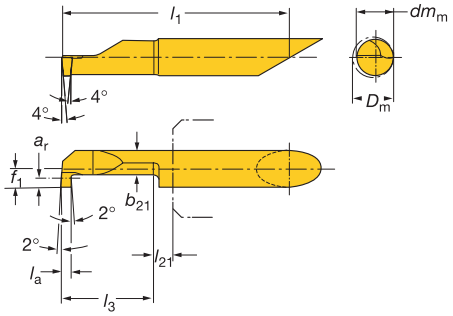
CoroTurn® XS inserts

Grooving



Tolerances, mm:
l_a= +0.05/-0
r_ε= ±0.02
l_1= ±0.02
Centre height:
+0.05/-0

CXS-..G



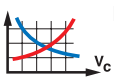
	Insert size[1]		Selection criteria, mm				Dimensions, mm				P GC	M GC	N GC	S GC
	dm_m	Ordering code	a_r max	D_m min	l_a	l_3	b_{21}	f_1	l_1	l_{21}	1025	1025	1025	1025
	06	CXS-06G157-6210R	1.80	6.2	1.57	10.0	3.95	2.95	32.40	3	★	★	★	★
		CXS-06G157-6215R/L	1.80	6.2	1.57	15.0	3.95	2.95	37.50	3	★	★	★	★
		CXS-06G157-6225R	1.80	6.2	1.57	25.0	3.95	2.95	47.60	3	★	★	★	★
		CXS-06G157-6235R/L	1.80	6.2	1.57	35.0	3.95	2.95	57.80	3	★	★	★	★
		CXS-06G198-6210R	1.80	6.2	1.98	10.0	3.95	2.95	32.40	3	★	★	★	★
		CXS-06G198-6215R/L	1.80	6.2	1.98	15.0	3.95	2.95	37.50	3	★	★	★	★
		CXS-06G198-6225R	1.80	6.2	1.98	25.0	3.95	2.95	47.60	3	★	★	★	★
		CXS-06G198-6235R/L	1.80	6.2	1.98	35.0	3.95	2.95	57.80	3	★	★	★	★
		CXS-06G200-6210R	1.80	6.2	2.00	10.0	3.95	2.95	32.30	3	★	★	★	★
		CXS-06G200-6215R/L	1.80	6.2	2.00	15.0	3.95	2.95	37.30	3	★	★	★	★
		CXS-06G200-6225R/L	1.80	6.2	2.00	25.0	3.95	2.95	47.30	3	★	★	★	★
	07	CXS-07G078-7210R	2.50	7.2	0.78	10.0	4.25	3.45	32.40	3	★	★	★	★
		CXS-07G078-7215R/L	2.50	7.2	0.78	15.0	4.25	3.45	37.50	3	★	★	★	★
		CXS-07G078-7225R	2.50	7.2	0.78	25.0	4.25	3.45	47.60	3	★	★	★	★
		CXS-07G078-7235R/L	2.50	7.2	0.78	35.0	4.25	3.45	57.80	3	★	★	★	★
		CXS-07G100-7210R/L	2.50	7.2	1.00	10.0	4.25	3.45	32.30	3	★	★	★	★
		CXS-07G100-7215R/L	2.50	7.2	1.00	15.0	4.25	3.45	37.30	3	★	★	★	★
		CXS-07G100-7225R/L	2.50	7.2	1.00	25.0	4.25	3.45	47.30	3	★	★	★	★
		CXS-07G100-7235R	2.50	7.2	1.00	35.0	4.25	3.45	57.30	3	★	★	★	★
		CXS-07G117-7210R	2.50	7.2	1.17	10.0	4.25	3.45	32.40	3	★	★	★	★
		CXS-07G117-7215R/L	2.50	7.2	1.17	15.0	4.25	3.45	37.50	3	★	★	★	★
		CXS-07G117-7225R	2.50	7.2	1.17	25.0	4.25	3.45	47.60	3	★	★	★	★
		CXS-07G117-7235R/L	2.50	7.2	1.17	35.0	4.25	3.45	57.80	3	★	★	★	★
		CXS-07G150-7210R	2.50	7.2	1.50	10.0	4.25	3.45	32.30	3	★	★	★	★
		CXS-07G150-7215R/L	2.50	7.2	1.50	15.0	4.25	3.45	37.30	3	★	★	★	★
		CXS-07G150-7225R/L	2.50	7.2	1.50	25.0	4.25	3.45	47.30	3	★	★	★	★
		CXS-07G150-7235R	2.50	7.2	1.50	35.0	4.25	3.45	57.30	3	★	★	★	★
		CXS-07G157-7210R	2.50	7.2	1.57	10.0	4.25	3.45	32.40	3	★	★	★	★
		CXS-07G157-7215R/L	2.50	7.2	1.57	15.0	4.25	3.45	37.50	3	★	★	★	★
		CXS-07G157-7225R	2.50	7.2	1.57	25.0	4.25	3.45	47.60	3	★	★	★	★
		CXS-07G157-7235R/L	2.50	7.2	1.57	35.0	4.25	3.45	57.80	3	★	★	★	★
		CXS-07G198-7210R	2.50	7.2	1.98	10.0	4.25	3.45	32.40	3	★	★	★	★
		CXS-07G198-7215R/L	2.50	7.2	1.98	15.0	4.25	3.45	37.50	3	★	★	★	★
		CXS-07G198-7225R	2.50	7.2	1.98	25.0	4.25	3.45	47.60	3	★	★	★	★
		CXS-07G198-7235R/L	2.50	7.2	1.98	35.0	4.25	3.45	57.80	3	★	★	★	★
		CXS-07G200-7210R	2.50	7.2	2.00	10.0	4.25	3.45	32.30	3	★	★	★	★
		CXS-07G200-7215R/L	2.50	7.2	2.00	15.0	4.25	3.45	37.30	3	★	★	★	★
		CXS-07G200-7225R/L	2.50	7.2	2.00	25.0	4.25	3.45	47.30	3	★	★	★	★
		CXS-07G200-7235R	2.50	7.2	2.00	35.0	4.25	3.45	57.30	3	★	★	★	★
											P25	M15	N15	S15

[1] To correspond with insert size on holder.

R = Right hand, L = Left hand

★= First choice

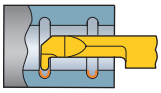
 C17

 F12

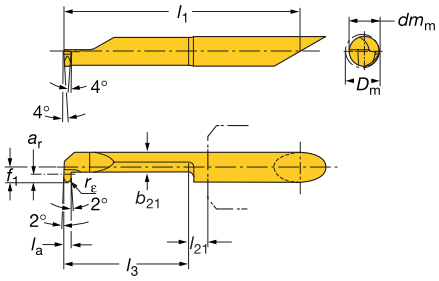
GC G5

CoroTurn® XS inserts

Profiling



CXS-..R



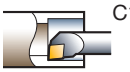
Tolerances, mm:
l_a= +0.05/-0
r_ε= ±0.02
l_1= ±0.02
Centre height:
+0.05/-0

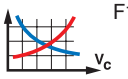
	Insert size[1]		Selection criteria, mm				Dimensions, mm					P	M	N	S
												GC	GC	GC	GC
	dm_m	**Ordering code**	a_r max	D_m min	l_a	l_3	r_ε	b_{21}	f_1	l_1	l_{21}	1025	1025	1025	1025
	04	**CXS-04R100-4215R/L**	0.80	4.2	1.00	15.0	0.50	2.95	1.95	32.30	3	★	★	★	★
		CXS-04R058-4215R	0.80	4.2	1.17	15.0	0.58	2.95	2.45	32.50	3	★	★	★	★
	05	**CXS-05R100-5220R/L**	1.00	5.2	1.00	20.0	0.50	3.75	2.45	42.30	3	★	★	★	★
		CXS-05R058-5220R/L	1.00	5.2	1.17	20.0	0.58	3.75	2.45	42.50	3	★	★	★	★
		CXS-05R150-5220R	1.00	5.2	1.50	20.0	0.75	3.75	2.45	42.30	3	★	★	★	★
		CXS-05R081-5220R/L	1.00	5.2	1.63	20.0	0.81	3.75	2.45	42.50	3	★	★	★	★
		CXS-05R099-5220R/L	1.00	5.2	1.98	20.0	0.99	3.75	2.45	42.50	3	★	★	★	★
		CXS-05R200-5220R	1.00	5.2	2.00	20.0	1.00	3.75	2.45	42.30	3	★	★	★	★
	06	**CXS-06R100-6225R/L**	1.80	6.2	1.00	25.0	0.50	3.95	2.95	47.30	3	★	★	★	★
		CXS-06R058-6225R/L	1.80	6.2	1.17	25.0	0.58	3.95	2.95	47.60	3	★	★	★	★
		CXS-06R150-6225R/L	1.80	6.2	1.50	25.0	0.75	3.95	2.95	47.30	3	★	★	★	★
		CXS-06R081-6225R/L	1.80	6.2	1.63	25.0	0.81	3.95	2.95	47.60	3	★	★	★	★
		CXS-06R099-6225R/L	1.80	6.2	1.98	25.0	0.99	3.95	2.95	47.60	3	★	★	★	★
		CXS-06R200-6225R/L	1.80	6.2	2.00	25.0	1.00	3.95	2.95	47.30	3	★	★	★	★
	07	**CXS-07R100-7230R/L**	2.50	7.2	1.00	30.0	0.50	4.25	3.45	52.30	3	★	★	★	★
		CXS-07R058-7230R/L	2.50	7.2	1.17	30.0	0.58	4.25	3.45	52.70	3	★	★	★	★
		CXS-07R150-7230R/L	2.50	7.2	1.50	30.0	0.75	4.25	3.45	52.30	3	☆	★	★	★
		CXS-07R081-7230R/L	2.50	7.2	1.63	30.0	0.81	4.25	3.45	52.70	3	★	★	★	★
		CXS-07R099-7230R/L	2.50	7.2	1.98	30.0	0.99	4.25	3.45	52.70	3	★	★	★	★
		CXS-07R200-7230R/L	2.50	7.2	2.00	30.0	1.00	4.25	3.45	52.30	3	★	★	★	★
												P25	M15	N15	S15

[1] To correspond with insert size on holder.

R = Right hand, L = Left hand

★= First choice

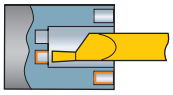
 C17

 F12

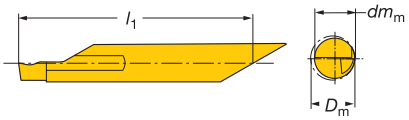
 G5

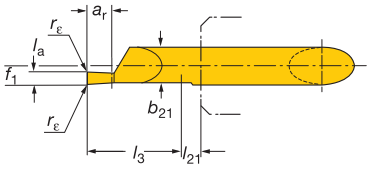
CoroTurn® XS inserts

Face grooving



CXS-..F





Tolerances, mm:
l_a= +0.05/-0
r_ε= ±0.02
l_1= ±0.02
Centre height:
+0.05/-0

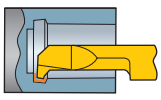
	Insert size[1]		Selection criteria, mm				Dimensions, mm					P	M	N	S
												GC	GC	GC	GC
	dm_m	Ordering code	a_r max	D_m min	l_a	l_3	r_ε	b_{21}	f_1	l_1	l_{21}	1025	1025	1025	1025
	06	CXS-06F100-6215AR	2.00	6.2	1.00	15.0	0.15	6.00	2.95	37.30	3	★	★	★	★
		CXS-06F150-6215AR	3.00	6.2	1.50	15.0	0.15	6.00	2.95	37.30	3	★	★	★	★
		CXS-06F200-6215AR	4.00	6.2	2.00	15.0	0.15	6.00	2.95	37.30	3	★	★	★	★
		CXS-06F250-6215AR	5.00	6.2	2.50	15.0	0.15	6.00	2.95	37.30	3	★	★	★	★
		CXS-06F300-6215AR	6.00	6.2	3.00	15.0	0.15	6.00	2.95	37.30	3	★	★	★	★
												P25	M15	N15	S15

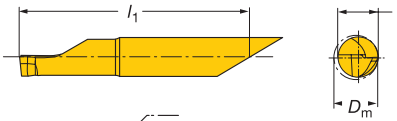
[1] To correspond with insert size on holder.

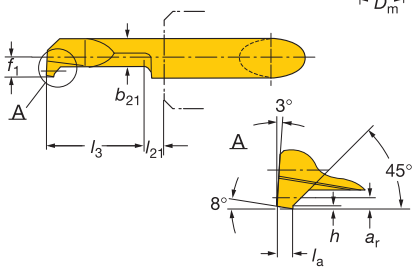
R = Right hand, L = Left hand
★= First choice

Pre-parting

CXS-..GX







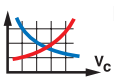
Tolerances, mm:
l_a= +0.05/-0
l_1= ±0.02
Centre height:
+0.05/-0

	Insert size[1]		Selection criteria, mm				Dimensions, mm					P	M	N	S
												GC	GC	GC	GC
	dm_m	Ordering code	a_r max	D_m min	l_a	l_3	b_{21}	f_1	h	l_1	l_{21}	1025	1025	1025	1025
	05	CXS-05GX100-5215R/L	0.70	5.2	1.00	15.0	3.75	2.45	0.2	37.30	3	★	★	★	★
		CXS-05GX100-5220R	0.70	5.2	1.00	20.0	3.75	2.45	0.2	42.30	3	★	★	★	★
		CXS-05GX100-5225R/L	0.70	5.2	1.00	25.0	3.75	2.45	0.2	47.30	3	★	★	★	★
		CXS-05GX100-5230R	0.70	5.2	1.00	30.0	3.75	2.45	0.2	52.30	3	★	★	★	★
												P25	M15	N15	S15

[1] To correspond with insert size on holder.

R = Right hand, L = Left hand
★= First choice


C17

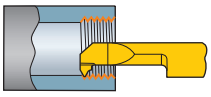


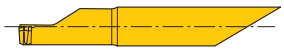
F12

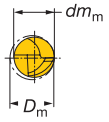
G5

CoroTurn® XS inserts

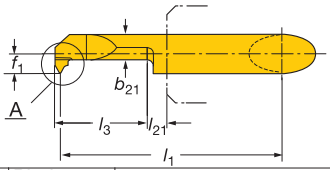
Threading

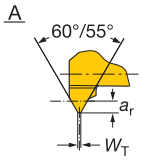






Tolerances, mm:
r_ε= ±0.02
l_1= ±0.02
Centre height:
+0.05/-0



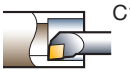


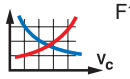
	Insert size[1]	Pitch			Dimensions, mm								P	M	N	S
													GC	GC	GC	GC
	dm_m	mm	t.p.i.	Ordering code	a_r max	b_{21}	D_m min	f_1	l_{21}	l_1	l_3	W_T	1025	1025	1025	1025
Metric 60° Full form	04	0.50		CXS-04TH050MM-4215-R	0.27	3.45	4.2	1.95	3	32.3	15	0.06	★	★	★	★
		0.70		CXS-04TH070MM-4215R	0.38	3.15	4.2	1.90	3	32.3	15	0.08	★	★	★	★
		0.80		CXS-04TH080MM-4215R	0.43	3.00	4.2	1.85	3	32.3	15	0.10	★	★	★	★
	05	0.50		CXS-05TH050MM-5215R	0.27	4.45	5.2	2.45	3	37.3	15	0.06	★	★	★	★
		0.75		CXS-05TH075MM-5115R	0.41	4.15	5.1	2.40	3	37.3	15	0.09	★	★	★	★
		1.00		CXS-05TH100MM-4815R	0.54	3.55	4.8	2.25	3	37.3	15	0.12	★	★	★	★
	06	1.00		CXS-06TH100MM-6215R	0.54	5.05	6.2	2.95	3	37.3	15	0.12	★	★	★	★
		1.25		CXS-06TH125MM-6215R	0.68	4.80	6.2	2.95	3	37.3	15	0.15	★	★	★	★
		1.50		CXS-06TH150MM-6215R	0.81	4.50	6.2	2.95	3	37.3	15	0.18	★	★	★	★
		1.75		CXS-06TH175MM-6215R	0.95	4.30	6.2	2.95	3	37.3	15	0.21	★	★	★	★
		2.00		CXS-06TH200MM-6215R	1.08	4.10	6.2	2.95	3	37.3	15	0.25	★	★	★	★
UN 60° Full form	04		32	CSX-04TH32UN-4015	0.43	2.95	4.0	1.85	3	32.3	15	0.10	★	★	★	★
			28	CSX-04TH28UN-4015	0.49	2.95	4.0	1.85	3	32.3	15	0.11	★	★	★	★
			24	CSX-04TH24UN-4215	0.57	3.05	4.2	1.95	3	32.3	15	0.13	★	★	★	★
	05		20	CSX-05TH20UN-5215	0.69	3.95	5.2	2.45	3	37.3	15	0.16	★	★	★	★
	06		18	CSX-06TH18UN-6215	0.76	4.85	6.2	2.95	3	37.3	15	0.18	★	★	★	★
			16	CSX-06TH16UN-6215	0.86	4.75	6.2	2.95	3	37.3	15	0.20	★	★	★	★
V-profile 60°	04	0.50	48	CXS-04TH050VM-4215R/L	0.27	2.95	4.2	1.95	3	32.3	15	0.06	★	★	★	★
	05	0.50	48	CXS-05TH050VM-5215R	0.27	3.75	5.2	2.45	3	37.3	15	0.06	★	★	★	★
		0.75	36	CXS-05TH070VM-5115R	0.40	3.65	5.1	2.35	3	37.3	15	0.09	★	★	★	★
		1.00	24	CXS-05TH100VM-4815R/L	0.55	3.55	4.8	2.25	3	37.3	15	0.12	★	★	★	★
	06	1.00	24	CXS-06TH100VM-6215R/L	0.55	3.55	6.2	2.95	3	37.3	15	0.12	★	★	★	★
		1.25	20	CXS-06TH125VM-6215R/L	0.68	3.55	6.2	2.95	3	37.3	15	0.12	★	★	★	★
		1.50	16	CXS-06TH150VM-6215R/L	0.81	3.55	6.2	2.95	3	37.3	15	0.12	★	★	★	★
Whitworth 55°	05		28	CXS-05TH28WH-5215R		3.75	5.2	2.45	3	37.3	15		★	★	★	★
			26	CXS-05TH26WH-5215R		3.75	5.2	2.45	3	37.3	15		★	★	★	★
			24	CXS-05TH24WH-5215R		3.75	5.2	2.45	3	37.3	15		★	★	★	★
	06		28	CXS-06TH28WH-6215R		3.95	6.2	2.95	3	37.3	15		★	★	★	★
			26	CXS-06TH26WH-6215R		3.95	6.2	2.95	3	37.3	15		★	★	★	★
			24	CXS-06TH24WH-6215R		3.95	6.2	2.95	3	37.3	15		★	★	★	★
			22	CXS-06TH22WH-6215R		3.95	6.2	2.95	3	37.3	15		★	★	★	★
			20	CXS-06TH20WH-6215R		3.95	6.2	2.95	3	37.3	15		★	★	★	★
			19	CXS-06TH19WH-6215R/L		3.95	6.2	2.95	3	37.3	15		★	★	★	★
NPT 60°	06		18	CXS-06TH28WH-6215R		3.95	6.2	2.95	3	37.3	15		★	★	★	★
			27	CXS-06TH27NT-6215R		3.95	6.2	2.95	3	37.3	15		★	★	★	★
													P25	M15	N15	S15

[1] To correspond with insert size on holder.

R = Right hand, L = Left hand

★= First choice


C17

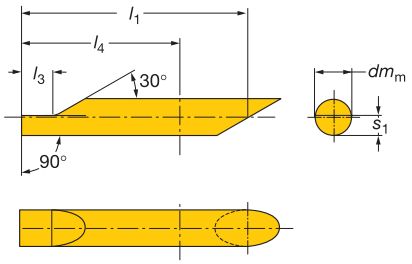


F12

CoroTurn® XS inserts

Blanks

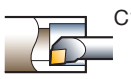
Tolerances, mm:
l_1= +0.25/+0.05

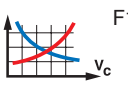


Insert size[1]	Ordering code	Dimensions, mm					Grades						
		dm_m	l_1	l_3	l_4	s_1	H10F						
04	**CXS-04B-50**	4.0	50.0	3.5	35.75	2.25	★						
05	**CXS-05B-65**	5.0	65.0	4	45.75	2.75	★						
06	**CXS-06B-70**	6.0	70.0	5	50.75	3.25	★						
07	**CXS-07B-70**	7.0	70.0	6	50.75	3.75	★						

1) To correspond with insert size on holder.

★= First choice


C17



F12

G5