

Concave Mirror Substrates/Aluminum Concave Mirror Substrates

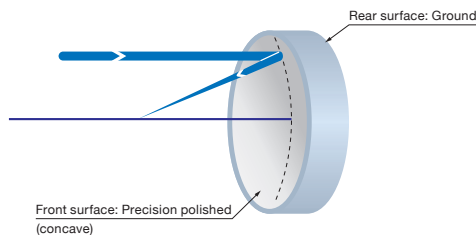
TCBS/TCA/TCAN

RoHS

Coatings on all concave mirror substrate models are available. Pre-coated aluminum concave mirrors are available. These substrates are mainly used as the primary mirror in a reflecting telescope or as reflection mirror of a collimating optical system light-source.

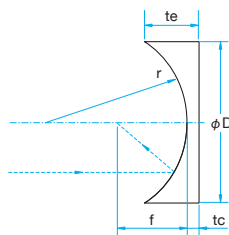


Schematic



Outline Drawing

(in mm)



- Tolerance Diameter $\phi D_{\pm 0.1}$ Thickness $tc \pm 0.2$

- Relationship between focal length "f" and the radius of curvature "r" of the concave mirror $r = 2f$

- Large selection from outer size to radius of curvature is available on our website and in our catalog.
- Contact our Sales Division for your choice of coating specifications.

Specifications

Material	BK7
Spherical accuracy	$\lambda/2$
Radius Tolerance	$\pm 2\%$
Coating	Substrates: Uncoated Mirrors with Protective layer: Al+MgF ₂ Mirrors without Protective layer: Al
Clear aperture	85% of actual aperture
Surface Quality (Scratch-Dig)	Substrates: 20-10 With coating: 40-20
Rear Surface	Ground

Guide

- For high power lasers use concave substrates (LCBS) suitable for Laser resonator applications. [Reference](#) B308

Attention

- The back side of the substrate has a ground surface; it is not usable for transmission. For transmission we recommend plano concave lenses (SLB-N). [Reference](#) B118
- For cold-mirror or partial reflection application, please contact our Sales Division for a concave mirror on the back side polished.
- The outer edge of the concave surface is chamfered, the thickness of the edge varies therefore use the back side of the substrate as datum.

φ10

Substrates						Mirror coating	
Part Number	Diameter ϕD [mm]	Edge thickness t_e [mm]	Center thickness t_c [mm]	Radius of curvature r [mm]	Focal length f [mm]	With Protective layer Part Number	Without Protective layer Part Number
TCBS-10C05-10	φ10	5	3.7	10	5	TCA-10C05-10	TCAN-10C05-10
TCBS-10C05-15	φ10	5	4.1	15	7.5	TCA-10C05-15	TCAN-10C05-15
TCBS-10C05-20	φ10	5	4.4	20	10	TCA-10C05-20	TCAN-10C05-20
TCBS-10C05-25	φ10	5	4.5	25	12.5	TCA-10C05-25	TCAN-10C05-25
TCBS-10C05-30	φ10	5	4.6	30	15	TCA-10C05-30	TCAN-10C05-30
TCBS-10C05-40	φ10	5	4.7	40	20	TCA-10C05-40	TCAN-10C05-40
TCBS-10C05-50	φ10	5	4.7	50	25	TCA-10C05-50	TCAN-10C05-50
TCBS-10C05-60	φ10	5	4.8	60	30	TCA-10C05-60	TCAN-10C05-60
TCBS-10C05-70	φ10	5	4.8	70	35	TCA-10C05-70	TCAN-10C05-70
TCBS-10C05-80	φ10	5	4.8	80	40	TCA-10C05-80	TCAN-10C05-80
TCBS-10C05-90	φ10	5	4.9	90	45	TCA-10C05-90	TCAN-10C05-90
TCBS-10C05-100	φ10	5	4.9	100	50	TCA-10C05-100	TCAN-10C05-100
TCBS-10C05-120	φ10	5	4.9	120	60	TCA-10C05-120	TCAN-10C05-120
TCBS-10C05-150	φ10	5	4.9	150	75	TCA-10C05-150	TCAN-10C05-150
TCBS-10C05-200	φ10	5	4.9	200	100	TCA-10C05-200	TCAN-10C05-200
TCBS-10C05-250	φ10	5	4.9	250	125	TCA-10C05-250	TCAN-10C05-250
TCBS-10C05-300	φ10	5	5.0	300	150	TCA-10C05-300	TCAN-10C05-300
TCBS-10C05-400	φ10	5	5.0	400	200	TCA-10C05-400	TCAN-10C05-400
TCBS-10C05-500	φ10	5	5.0	500	250	TCA-10C05-500	TCAN-10C05-500
TCBS-10C05-600	φ10	5	5.0	600	300	TCA-10C05-600	TCAN-10C05-600
TCBS-10C05-700	φ10	5	5.0	700	350	TCA-10C05-700	TCAN-10C05-700
TCBS-10C05-800	φ10	5	5.0	800	400	TCA-10C05-800	TCAN-10C05-800
TCBS-10C05-1000	φ10	5	5.0	1000	500	TCA-10C05-1000	TCAN-10C05-1000
TCBS-10C05-1500	φ10	5	5.0	1500	750	TCA-10C05-1500	TCAN-10C05-1500
TCBS-10C05-2000	φ10	5	5.0	2000	1000	TCA-10C05-2000	TCAN-10C05-2000
TCBS-10C05-2500	φ10	5	5.0	2500	1250	TCA-10C05-2500	TCAN-10C05-2500
TCBS-10C05-3000	φ10	5	5.0	3000	1500	TCA-10C05-3000	TCAN-10C05-3000
TCBS-10C05-4000	φ10	5	5.0	4000	2000	TCA-10C05-4000	TCAN-10C05-4000
TCBS-10C05-5000	φ10	5	5.0	5000	2500	TCA-10C05-5000	TCAN-10C05-5000
TCBS-10C05-10000	φ10	5	5.0	10000	5000	TCA-10C05-10000	TCAN-10C05-10000

Compatible Optic Mounts

LHCM-10, -15 / LHCM-20 / ALHN-25-3RO, -30-3RO / LHCM-40 / ALHN-50-3RO



φ15 – φ20							
Substrates						Mirror coating	
Part Number	Diameter φD [mm]	Edge thickness te [mm]	Center thickness tc [mm]	Radius of curvature r [mm]	Focal length f [mm]	With Protective layer Part Number	Without Protective layer Part Number
TCBS-15C07-10	φ15	7	3.6	10	5	TCA-15C07-10	TCAN-15C07-10
TCBS-15C07-15	φ15	7	5.0	15	7.5	TCA-15C07-15	TCAN-15C07-15
TCBS-15C05-20	φ15	5	3.5	20	10	TCA-15C05-20	TCAN-15C05-20
TCBS-15C05-25	φ15	5	3.8	25	12.5	TCA-15C05-25	TCAN-15C05-25
TCBS-15C05-30	φ15	5	4.0	30	15	TCA-15C05-30	TCAN-15C05-30
TCBS-15C05-40	φ15	5	4.3	40	20	TCA-15C05-40	TCAN-15C05-40
TCBS-15C05-50	φ15	5	4.4	50	25	TCA-15C05-50	TCAN-15C05-50
TCBS-15C05-60	φ15	5	4.5	60	30	TCA-15C05-60	TCAN-15C05-60
TCBS-15C05-70	φ15	5	4.6	70	35	TCA-15C05-70	TCAN-15C05-70
TCBS-15C05-80	φ15	5	4.6	80	40	TCA-15C05-80	TCAN-15C05-80
TCBS-15C05-90	φ15	5	4.7	90	45	TCA-15C05-90	TCAN-15C05-90
TCBS-15C05-100	φ15	5	4.7	100	50	TCA-15C05-100	TCAN-15C05-100
TCBS-15C05-120	φ15	5	4.8	120	60	TCA-15C05-120	TCAN-15C05-120
TCBS-15C05-150	φ15	5	4.8	150	75	TCA-15C05-150	TCAN-15C05-150
TCBS-15C05-200	φ15	5	4.9	200	100	TCA-15C05-200	TCAN-15C05-200
TCBS-15C05-250	φ15	5	4.9	250	125	TCA-15C05-250	TCAN-15C05-250
TCBS-15C05-300	φ15	5	4.9	300	150	TCA-15C05-300	TCAN-15C05-300
TCBS-15C05-400	φ15	5	4.9	400	200	TCA-15C05-400	TCAN-15C05-400
TCBS-15C05-500	φ15	5	4.9	500	250	TCA-15C05-500	TCAN-15C05-500
TCBS-15C05-600	φ15	5	5.0	600	300	TCA-15C05-600	TCAN-15C05-600
TCBS-15C05-700	φ15	5	5.0	700	350	TCA-15C05-700	TCAN-15C05-700
TCBS-15C05-800	φ15	5	5.0	800	400	TCA-15C05-800	TCAN-15C05-800
TCBS-15C05-1000	φ15	5	5.0	1000	500	TCA-15C05-1000	TCAN-15C05-1000
TCBS-15C05-1500	φ15	5	5.0	1500	750	TCA-15C05-1500	TCAN-15C05-1500
TCBS-15C05-2000	φ15	5	5.0	2000	1000	TCA-15C05-2000	TCAN-15C05-2000
TCBS-15C05-2500	φ15	5	5.0	2500	1250	TCA-15C05-2500	TCAN-15C05-2500
TCBS-15C05-3000	φ15	5	5.0	3000	1500	TCA-15C05-3000	TCAN-15C05-3000
TCBS-15C05-4000	φ15	5	5.0	4000	2000	TCA-15C05-4000	TCAN-15C05-4000
TCBS-15C05-5000	φ15	5	5.0	5000	2500	TCA-15C05-5000	TCAN-15C05-5000
TCBS-15C05-10000	φ15	5	5.0	10000	5000	TCA-15C05-10000	TCAN-15C05-10000
TCBS-15C05-30000	φ15	5	5.0	30000	15000	TCA-15C05-30000	TCAN-15C05-30000
TCBS-20C08-15	φ20	8	4.2	15	7.5	TCA-20C08-15	TCAN-20C08-15
TCBS-20C08-20	φ20	8	5.3	20	10	TCA-20C08-20	TCAN-20C08-20
TCBS-20C08-25	φ20	8	5.9	25	12.5	TCA-20C08-25	TCAN-20C08-25
TCBS-20C05-30	φ20	5	3.3	30	15	TCA-20C05-30	TCAN-20C05-30
TCBS-20C05-40	φ20	5	3.7	40	20	TCA-20C05-40	TCAN-20C05-40
TCBS-20C05-50	φ20	5	4.0	50	25	TCA-20C05-50	TCAN-20C05-50
TCBS-20C05-60	φ20	5	4.2	60	30	TCA-20C05-60	TCAN-20C05-60
TCBS-20C05-70	φ20	5	4.3	70	35	TCA-20C05-70	TCAN-20C05-70
TCBS-20C05-80	φ20	5	4.4	80	40	TCA-20C05-80	TCAN-20C05-80
TCBS-20C05-90	φ20	5	4.4	90	45	TCA-20C05-90	TCAN-20C05-90
TCBS-20C05-100	φ20	5	4.5	100	50	TCA-20C05-100	TCAN-20C05-100
TCBS-20C05-120	φ20	5	4.6	120	60	TCA-20C05-120	TCAN-20C05-120
TCBS-20C05-150	φ20	5	4.7	150	75	TCA-20C05-150	TCAN-20C05-150
TCBS-20C05-200	φ20	5	4.7	200	100	TCA-20C05-200	TCAN-20C05-200
TCBS-20C05-250	φ20	5	4.8	250	125	TCA-20C05-250	TCAN-20C05-250
TCBS-20C05-300	φ20	5	4.8	300	150	TCA-20C05-300	TCAN-20C05-300
TCBS-20C05-400	φ20	5	4.9	400	200	TCA-20C05-400	TCAN-20C05-400
TCBS-20C05-500	φ20	5	4.9	500	250	TCA-20C05-500	TCAN-20C05-500
TCBS-20C05-600	φ20	5	4.9	600	300	TCA-20C05-600	TCAN-20C05-600
TCBS-20C05-700	φ20	5	4.9	700	350	TCA-20C05-700	TCAN-20C05-700
TCBS-20C05-800	φ20	5	4.9	800	400	TCA-20C05-800	TCAN-20C05-800
TCBS-20C05-1000	φ20	5	5.0	1000	500	TCA-20C05-1000	TCAN-20C05-1000
TCBS-20C05-1500	φ20	5	5.0	1500	750	TCA-20C05-1500	TCAN-20C05-1500
TCBS-20C05-2000	φ20	5	5.0	2000	1000	TCA-20C05-2000	TCAN-20C05-2000
TCBS-20C05-2500	φ20	5	5.0	2500	1250	TCA-20C05-2500	TCAN-20C05-2500
TCBS-20C05-3000	φ20	5	5.0	3000	1500	TCA-20C05-3000	TCAN-20C05-3000
TCBS-20C05-4000	φ20	5	5.0	4000	2000	TCA-20C05-4000	TCAN-20C05-4000
TCBS-20C05-5000	φ20	5	5.0	5000	2500	TCA-20C05-5000	TCAN-20C05-5000
TCBS-20C05-10000	φ20	5	5.0	10000	5000	TCA-20C05-10000	TCAN-20C05-10000
TCBS-20C05-30000	φ20	5	5.0	30000	15000	TCA-20C05-30000	TCAN-20C05-30000

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Concave Mirror Substrates/Aluminum Concave Mirror Substrates

TCBS/TCA/TCAN
φ25 – φ30

Application Systems	Substrates						Mirror coating	
	Part Number	Diameter φD [mm]	Edge thickness te [mm]	Center thickness tc [mm]	Radius of curvature r [mm]	Focal length f [mm]	With Protective layer Part Number	Without Protective layer Part Number
Optics & Optical Coatings	TCBS-25C10-15	φ25	10	3.3	15	7.5	TCA-25C10-15	TCAN-25C10-15
	TCBS-25C07-20	φ25	7	2.6	20	10	TCA-25C07-20	TCAN-25C07-20
Opto-Mechanics	TCBS-25C07-25	φ25	7	3.7	25	12.5	TCA-25C07-25	TCAN-25C07-25
	TCBS-25C07-30	φ25	7	4.3	30	15	TCA-25C07-30	TCAN-25C07-30
	TCBS-25C07-40	φ25	7	5.0	40	20	TCA-25C07-40	TCAN-25C07-40
	TCBS-25C07-50	φ25	7	5.4	50	25	TCA-25C07-50	TCAN-25C07-50
Bases	TCBS-25C05-60	φ25	5	3.7	60	30	TCA-25C05-60	TCAN-25C05-60
	TCBS-25C05-70	φ25	5	3.9	70	35	TCA-25C05-70	TCAN-25C05-70
Manual Stages	TCBS-25C05-80	φ25	5	4.0	80	40	TCA-25C05-80	TCAN-25C05-80
	TCBS-25C05-90	φ25	5	4.1	90	45	TCA-25C05-90	TCAN-25C05-90
	TCBS-25C05-100	φ25	5	4.2	100	50	TCA-25C05-100	TCAN-25C05-100
Actuators & Adjusters	TCBS-25C05-120	φ25	5	4.3	120	60	TCA-25C05-120	TCAN-25C05-120
	TCBS-25C05-150	φ25	5	4.5	150	75	TCA-25C05-150	TCAN-25C05-150
Motoeized Stages	TCBS-25C05-200	φ25	5	4.6	200	100	TCA-25C05-200	TCAN-25C05-200
	TCBS-25C05-250	φ25	5	4.6	250	125	TCA-25C05-250	TCAN-25C05-250
	TCBS-25C05-300	φ25	5	4.7	300	150	TCA-25C05-300	TCAN-25C05-300
	TCBS-25C05-400	φ25	5	4.7	400	200	TCA-25C05-400	TCAN-25C05-400
Light Sources & Laser Safety	TCBS-25C05-500	φ25	5	4.8	500	250	TCA-25C05-500	TCAN-25C05-500
	TCBS-25C05-600	φ25	5	4.8	600	300	TCA-25C05-600	TCAN-25C05-600
	TCBS-25C05-700	φ25	5	4.9	700	350	TCA-25C05-700	TCAN-25C05-700
Index	TCBS-25C05-800	φ25	5	4.9	800	400	TCA-25C05-800	TCAN-25C05-800
	TCBS-25C05-1000	φ25	5	4.9	1000	500	TCA-25C05-1000	TCAN-25C05-1000
	TCBS-25C05-1500	φ25	5	4.9	1500	750	TCA-25C05-1500	TCAN-25C05-1500
	TCBS-25C05-2000	φ25	5	4.9	2000	1000	TCA-25C05-2000	TCAN-25C05-2000
Guide	TCBS-25C05-2500	φ25	5	5.0	2500	1250	TCA-25C05-2500	TCAN-25C05-2500
	TCBS-25C05-3000	φ25	5	5.0	3000	1500	TCA-25C05-3000	TCAN-25C05-3000
Mirrors	TCBS-25C05-4000	φ25	5	5.0	4000	2000	TCA-25C05-4000	TCAN-25C05-4000
	TCBS-25C05-5000	φ25	5	5.0	5000	2500	TCA-25C05-5000	TCAN-25C05-5000
Beamsplitters	TCBS-25C05-10000	φ25	5	5.0	10000	5000	TCA-25C05-10000	TCAN-25C05-10000
	TCBS-25C05-30000	φ25	5	5.0	30000	15000	TCA-25C05-30000	TCAN-25C05-30000
Polarizers	TCBS-25.4C07-50	φ25.4	7	5.4	50	25	TCA-25.4C07-50	TCAN-25.4C07-50
	TCBS-25.4C05-100	φ25.4	5	4.2	100	50	TCA-25.4C05-100	TCAN-25.4C05-100
Lenses	TCBS-25.4C05-250	φ25.4	5	4.7	250	125	TCA-25.4C05-250	TCAN-25.4C05-250
	TCBS-25.4C05-500	φ25.4	5	4.8	500	250	TCA-25.4C05-500	TCAN-25.4C05-500
Multi-Element Optics	TCBS-25.4C05-1000	φ25.4	5	4.9	1000	500	TCA-25.4C05-1000	TCAN-25.4C05-1000
	TCBS-30C10-20	φ30	10	3.2	20	10	TCA-30C10-20	TCAN-30C10-20
Filters	TCBS-30C10-25	φ30	10	5.0	25	12.5	TCA-30C10-25	TCAN-30C10-25
	TCBS-30C07-30	φ30	7	3.0	30	15	TCA-30C07-30	TCAN-30C07-30
Prisms	TCBS-30C07-40	φ30	7	4.1	40	20	TCA-30C07-40	TCAN-30C07-40
	TCBS-30C07-50	φ30	7	4.7	50	25	TCA-30C07-50	TCAN-30C07-50
Substrates/Windows	TCBS-30C07-60	φ30	7	5.1	60	30	TCA-30C07-60	TCAN-30C07-60
	TCBS-30C07-70	φ30	7	5.4	70	35	TCA-30C07-70	TCAN-30C07-70
Optical Data	TCBS-30C07-80	φ30	7	5.6	80	40	TCA-30C07-80	TCAN-30C07-80
	TCBS-30C07-90	φ30	7	5.7	90	45	TCA-30C07-90	TCAN-30C07-90
Maintenance	TCBS-30C07-100	φ30	7	5.9	100	50	TCA-30C07-100	TCAN-30C07-100
	TCBS-30C05-120	φ30	5	4.1	120	60	TCA-30C05-120	TCAN-30C05-120
Selection Guide	TCBS-30C05-150	φ30	5	4.2	150	75	TCA-30C05-150	TCAN-30C05-150
	TCBS-30C05-200	φ30	5	4.4	200	100	TCA-30C05-200	TCAN-30C05-200
Low Scattering	TCBS-30C05-250	φ30	5	4.5	250	125	TCA-30C05-250	TCAN-30C05-250
	TCBS-30C05-300	φ30	5	4.6	300	150	TCA-30C05-300	TCAN-30C05-300
Optical Flats	TCBS-30C05-400	φ30	5	4.7	400	200	TCA-30C05-400	TCAN-30C05-400
	TCBS-30C05-500	φ30	5	4.8	500	250	TCA-30C05-500	TCAN-30C05-500
Optical Parallels	TCBS-30C05-600	φ30	5	4.8	600	300	TCA-30C05-600	TCAN-30C05-600
	TCBS-30C05-700	φ30	5	4.8	700	350	TCA-30C05-700	TCAN-30C05-700
Wedged Substrates	TCBS-30C05-800	φ30	5	4.9	800	400	TCA-30C05-800	TCAN-30C05-800
	TCBS-30C05-1000	φ30	5	4.9	1000	500	TCA-30C05-1000	TCAN-30C05-1000
Concave Mirror Substrates	TCBS-30C05-1500	φ30	5	4.9	1500	750	TCA-30C05-1500	TCAN-30C05-1500
	TCBS-30C05-2000	φ30	5	4.9	2000	1000	TCA-30C05-2000	TCAN-30C05-2000
Master Optics	TCBS-30C05-2500	φ30	5	5.0	2500	1250	TCA-30C05-2500	TCAN-30C05-2500
	TCBS-30C05-3000	φ30	5	5.0	3000	1500	TCA-30C05-3000	TCAN-30C05-3000
Windows	TCBS-30C05-3500	φ30	5	5.0	3500	1750	TCA-30C05-3500	TCAN-30C05-3500
	TCBS-30C05-4000	φ30	5	5.0	4000	2000	TCA-30C05-4000	TCAN-30C05-4000
Concave Mirror Substrates	TCBS-30C05-5000	φ30	5	5.0	5000	2500	TCA-30C05-5000	TCAN-30C05-5000
	TCBS-30C05-10000	φ30	5	5.0	10000	5000	TCA-30C05-10000	TCAN-30C05-10000
Master Optics	TCBS-30C05-30000	φ30	5	5.0	30000	15000	TCA-30C05-30000	TCAN-30C05-30000