

### VS-TCH2



		VS-TCH2-65-LQL1	VS-TCH2-65CO-LQL1
Focus tunable lens (Optotune)	Model	EL-16-40-TC-VIS-5D-C	
	Focal power	-2 dpt	+3 dpt
Extension Tube		SV-EXR20	
Optical Mag.		x2.03	x1.91
FOV	2/3"	3.6x4.2 mm	3.8x4.5 mm
	1/2"	2.4x3.2 mm	2.6x3.4 mm
	1/3"	1.8x2.4 mm	1.9x2.6 mm
WD		66.1 mm	63.5 mm
Optical leverage		0.52 mm/dpt	
O/I (Object & Imager Distance)		164.5 mm	161.9 mm
Working F/#		13.9	13.0
Sensor Size (max.)		2/3"	
Co-Axial Prism		-	Built in
Dimension		φ30(max.) L=80.9 mm	

### VS-TCH4



		VS-TCH4-65-LQL1	VS-TCH4-65CO-LQL1
Focus tunable lens (Optotune)	Model	EL-16-40-TC-VIS-5D-C	
	Focal power	-2 dpt	+3 dpt
Extension Tube		SV-EXR15	
Optical Mag.		x4.00	x3.69
FOV	2/3"	1.8x2.1 mm	1.9x2.3 mm
	1/2"	1.2x1.6 mm	1.3x1.7 mm
	1/3"	0.9x1.2 mm	1.0x1.3 mm
WD		65.3 mm	64.7 mm
Optical leverage		0.12 mm/dpt	
O/I (Object & Imager Distance)		187.3 mm	186.7 mm
Working F/#		18.1	16.8
Sensor Size (max.)		2/3"	
Co-Axial Prism		-	Built in
Dimension		φ30(max.) L=104.6 mm	

### VS-THV1



		VS-THV1-110/S-LQL1	VS-THV1-110CO/S-LQL1
Focus tunable lens (Optotune)	Model	EL-16-40-TC-VIS-5D-C	
	Focal power	-2 dpt	+3 dpt
Extension Tube		SV-EXR25	
Optical Mag.		x1.0	x0.9
FOV	1"	11.3x11.3 mm	12.5x12.5 mm
	2/3"	7.1x8.4 mm	7.9x9.3 mm
	1/2"	4.8x6.4 mm	5.3x7.1 mm
WD		120.2 mm	106.1 mm
Optical leverage		2.82 mm/dpt	
O/I (Object & Imager Distance)		266.4 mm	252.3 mm
Working F/#		10.5	9.5
Sensor Size (max.)		1"	
Co-Axial Prism		-	Built in
Dimension		φ32(max.) L=128.75 mm	

### VS-THV2



		VS-THV2-110/S-LQL1	VS-THV2-110CO/S-LQL1
Focus tunable lens (Optotune)	Model	EL-16-40-TC-VIS-5D-C	
	Focal power	-2 dpt	+3 dpt
Extension Tube		SV-EXR50+SV-EXR10	
Optical Mag.		x2.0	x1.79
FOV	1"	5.6x5.6 mm	6.3x6.3 mm
	2/3"	3.6x4.2 mm	4.0x4.7 mm
	1/2"	2.4x3.2 mm	2.7x3.6 mm
WD		115.6 mm	105.4 mm
Optical leverage		2.04 mm/dpt	
O/I (Object & Imager Distance)		296.3 mm	286.1
Working F/#		10.2	9.1
Sensor Size (max.)		1"	
Co-Axial Prism		-	Built in
Dimension		φ38(max.) L=162.75 mm	

### VS-TM10



		VS-TM10-55CO-LQL1	
Focus tunable lens (Optotune)	Model	EL-16-40-TC-VIS-5D-C	
	Focal power	-2 dpt	+3 dpt
Extension Tube		SV-EXR20	
Optical Mag.		x11.06	x9.57
FOV	2/3"	0.6x0.8 mm	0.7x0.9 mm
	1/2"	0.4x0.6 mm	0.5x0.7 mm
	1/3"	0.3x0.4 mm	0.4x0.5 mm
WD		55.33 mm	55.38 mm
Optical leverage		0.01 mm/dpt	
O/I (Object & Imager Distance)		248.2 mm	248.2 mm
Working F/#		24.0	20.8
Sensor Size (max.)		2/3"	
Co-Axial Prism		Built in	
Dimension		φ37(max.) L=175.3 mm	

## Telecentric

# VS-LQL SERIES

Focus Tunable  
SERIES

Focus Tunable Telecentric Lens



Fast-focusing solution/Compact design

### International Sales Offices

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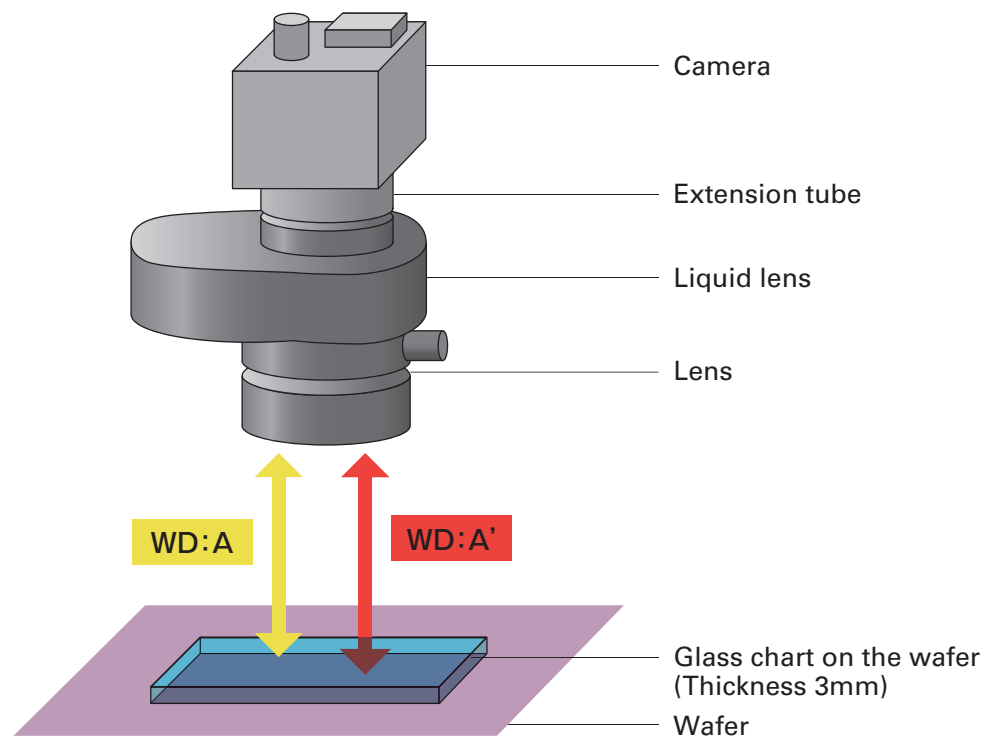


## Features

- Fast-focusing solution
- Focus tunable within working distance range

## Focus tunable test

Test environment: 5MP CMOS 2/3 sensor 3.45μm, VS-THV2-110CO-LQL1, spot lighting (red)

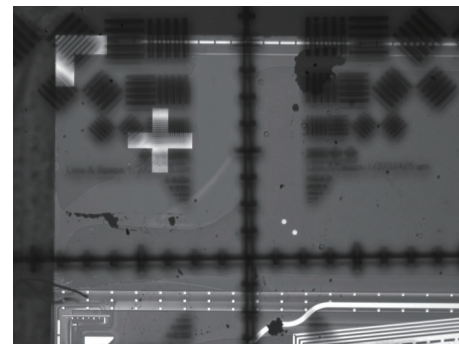
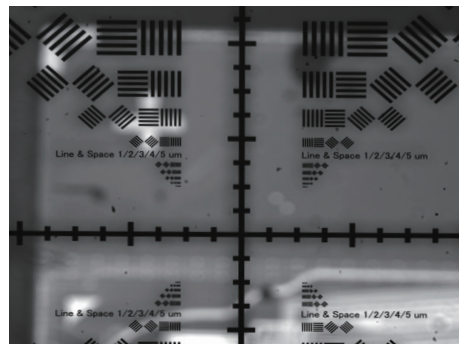


WD:A

Focus on top : Glass chart (Thickness 3mm)

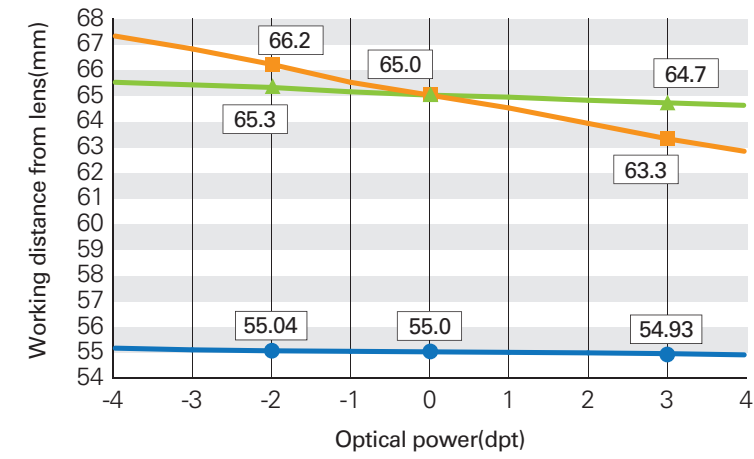
WD:A'

Focus on bottom : Wafer (Alignment mark)



Focus in various objects with different height

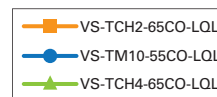
## LQL series WD chart



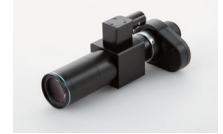
VS-TCH2-65CO-LQL1



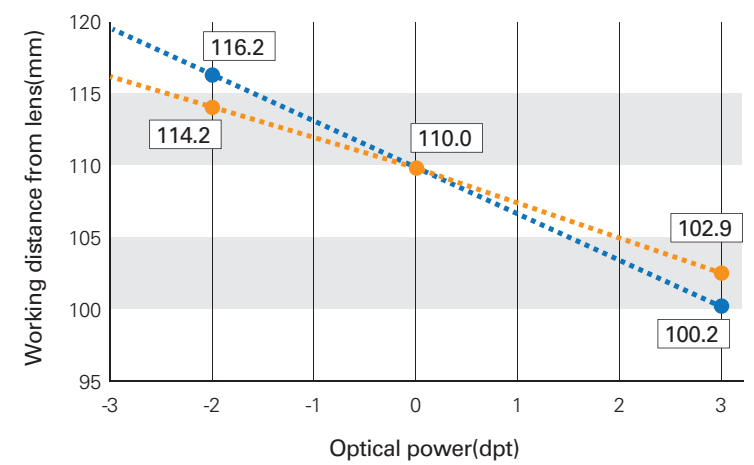
VS-TCH4-65CO-LQL1



VS-TM10-55CO-LQL1



VS-TM10-55CO-LQL1



VS-THV1-110-LQL1



VS-THV2-110-LQL1



VS-THV1-110-LQL1



VS-THV2-110-LQL1

## Applications



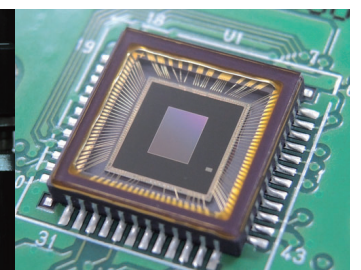
PCB



Medical



Cutting tool



Electronic components