

*Designing for Trust*

**Telecentric**

# VS-LQL Focus Tunable SERIES

Focus Tunable Telecentric Lens



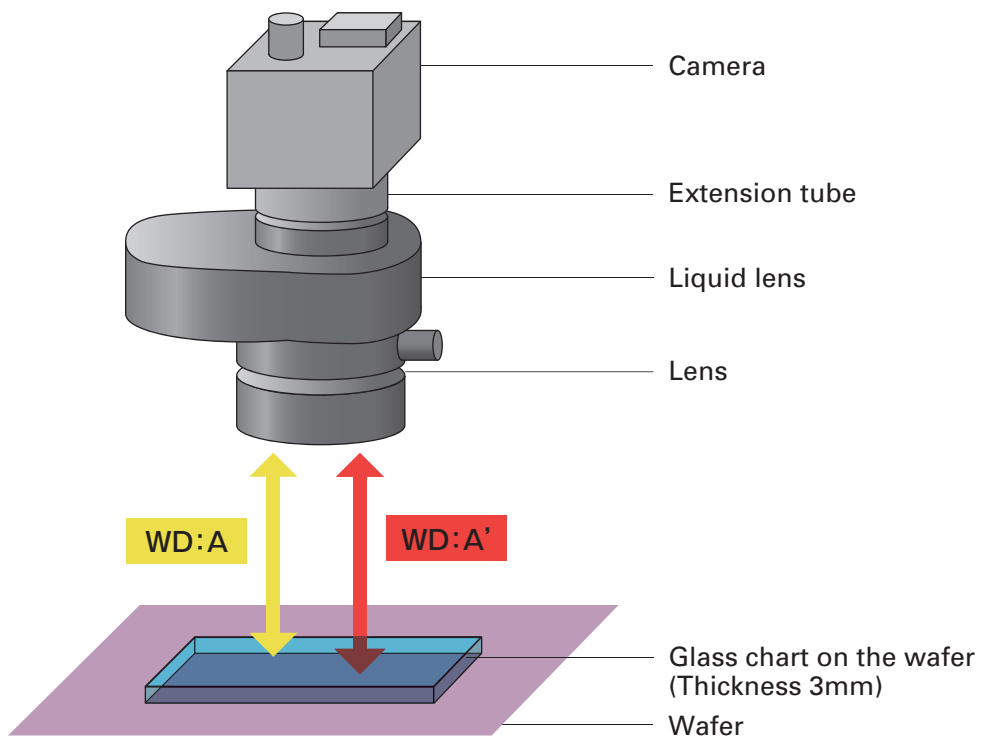
Fast-focusing solution/Compact design

## Features

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

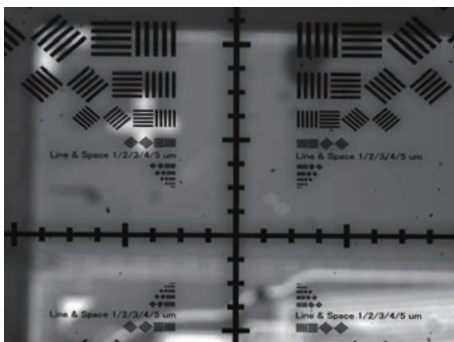
## Focus tunable test

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



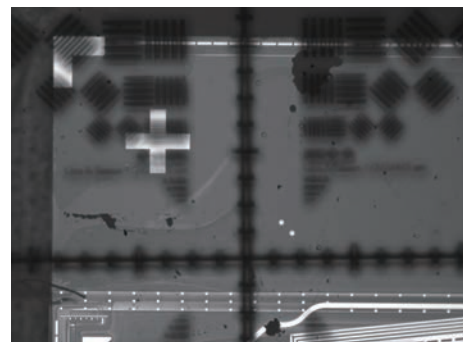
**WD:A**

Focus on top : Glass chart (Thickness 3mm)



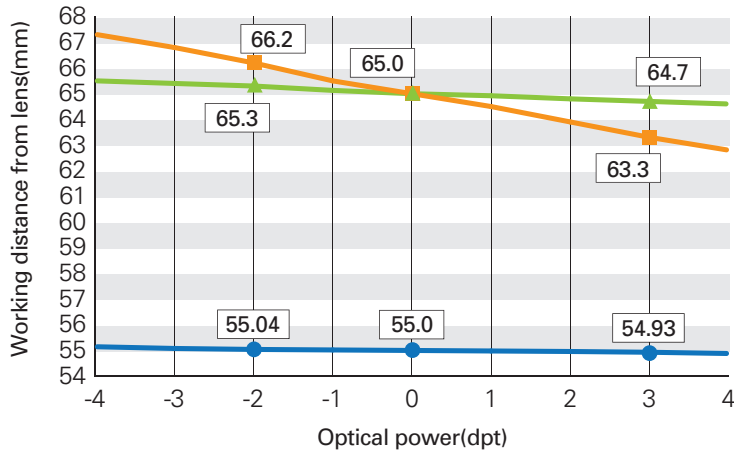
**WD:A'**

Focus on bottom : Wafer (Alignment mark)



Focus in various objects with different height

### LQL series WD chart



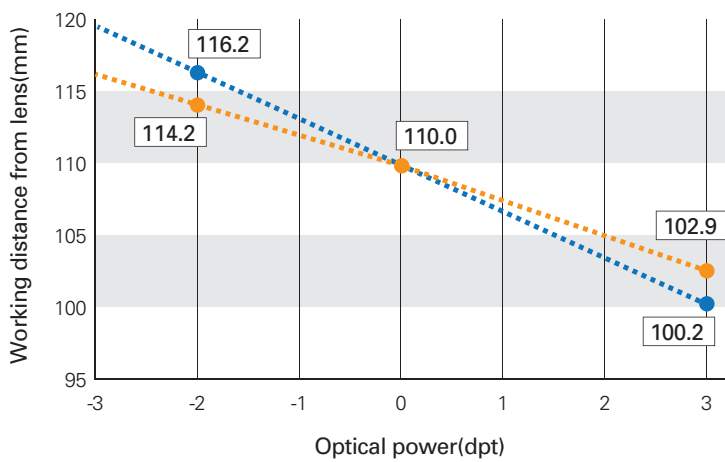
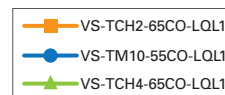
VS-TCH2-65CO-LQL1



VS-TCH4-65CO-LQL1



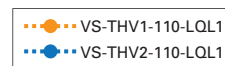
VS-TM10-55CO-LQL1



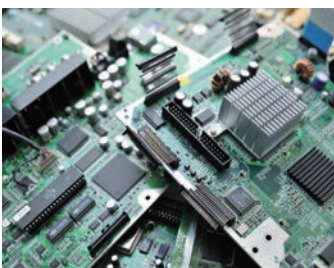
VS-THV1-110-LQL1



VS-THV2-110-LQL1



## Applications



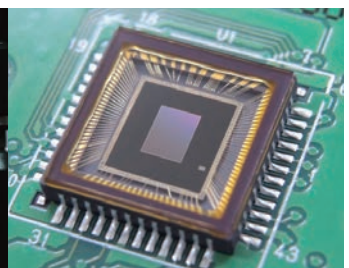
PCB



Medical



Cutting tool



Electronic components

## VS-TCH2



		VS-TCH2-65-LQL1	VS-TCH2-65CO-LQL1
Focustunable lens (Optotune)	Model	EL-16-40-TC-VIS-5D-C	
	Focal power	-2 dpt	+3 dpt
Extension Tube		SV-EXR20	
Optical Mag.		×2.0	×1.9
FOV	2/3"	3.6×4.2 mm	3.8×4.5 mm
	1/2"	2.4×3.2 mm	2.6×3.4 mm
	1/3"	1.8×2.4 mm	1.9×2.6 mm
WD		66.3 mm	63.6 mm
Optical leverage		0.54 mm/dpt	
O/I (Object & Imager Distance)		163.9 mm	161.2 mm
Working F/#		13.7	12.9
Sensor Size (max.)		2/3"	
Co-Axial Prism		-	Built in
Dimension		φ30(max.) L=80.1 mm	

## VS-TCH4



		VS-TCH4-65-LQL1	VS-TCH4-65CO-LQL1
Focustunable lens (Optotune)	Model	EL-16-40-TC-VIS-5D-C	
	Focal power	-2 dpt	+3 dpt
Extension Tube		SV-EXR15	
Optical Mag.		×4.0	×3.7
FOV	2/3"	1.8×2.1 mm	1.9×2.3 mm
	1/2"	1.2×1.6 mm	1.3×1.7 mm
	1/3"	0.9×1.2 mm	1.0×1.3 mm
WD		65.3 mm	64.8 mm
Optical leverage		0.10 mm/dpt	
O/I (Object & Imager Distance)		186.5 mm	186.0 mm
Working F/#		17.9	16.6
Sensor Size (max.)		2/3"	
Co-Axial Prism		-	Built in
Dimension		φ30(max.) L=103.7 mm	

## VS-THV1



		VS-THV1-110/S-LQL1	VS-THV1-110CO/S-LQL1
Focustunable lens (Optotune)	Model	EL-16-40-TC-VIS-5D-C	
	Focal power	-2 dpt	+3 dpt
Extension Tube		SV-EXR25	
Optical Mag.		×1.0	×0.9
FOV	1"	11.3×11.3 mm	12.5×12.5 mm
	2/3"	7.1×8.4 mm	7.9×9.3 mm
	1/2"	4.8×6.4 mm	5.3×7.1 mm
WD		121.7 mm	107.3 mm
Optical leverage		2.88 mm/dpt	
O/I (Object & Imager Distance)		267.1 mm	252.7 mm
Working F/#		10.3	9.3
Sensor Size (max.)		1"	
Co-Axial Prism		-	Built in
Dimension		φ32(max.) L=127.9 mm	

## VS-THV2



		VS-THV2-110/S-LQL1	VS-THV2-110CO/S-LQL1
Focustunable lens (Optotune)	Model	EL-16-40-TC-VIS-5D-C	
	Focal power	-2 dpt	+3 dpt
Extension Tube		SV-EXR50+SV-EXR10	
Optical Mag.		×2.0	×1.8
FOV	1"	5.6×5.6 mm	6.3×6.3 mm
	2/3"	3.6×4.2 mm	3.9×4.7 mm
	1/2"	2.4×3.2 mm	2.7×3.6 mm
WD		115.8 mm	105.6 mm
Optical leverage		2.04 mm/dpt	
O/I (Object & Imager Distance)		295.7 mm	285.5 mm
Working F/#		10.1	9.0
Sensor Size (max.)		1"	
Co-Axial Prism		-	Built in
Dimension		φ38(max.) L=162.4 mm	

## VS-TM10



		VS-TM10-55CO-LQL1	
Focustunable lens (Optotune)	Model	EL-16-40-TC-VIS-5D-C	
	Focal power	-2 dpt	+3 dpt
Extension Tube		SV-EXR20	
Optical Mag.		×10.5	×9.5
FOV	2/3"	0.7×0.8 mm	0.7×0.9 mm
	1/2"	0.5×0.6 mm	0.5×0.7 mm
	1/3"	0.3×0.5 mm	0.4×0.5 mm
WD		55.28 mm	55.18 mm
Optical leverage		0.02 mm/dpt	
O/I (Object & Imager Distance)		247.3 mm	247.2 mm
Working F/#		23.2	21.4
Sensor Size (max.)		2/3"	
Co-Axial Prism		Built in	
Dimension		φ37(max.) L=174.5 mm	

## International Sales Offices

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