

Unipolar Metal Ceramic Tubes

Industrial X-Ray

Overview







About Unipolar Metal Ceramic X-Ray Tubes

The COMET Unipolar Metal Ceramic tubes are designed for use in demanding industrial applications like Non-Destructive Testing, Food Inspection and Thickness Gauging.

The tube assembly consists of an Unipolar X-Ray tube with cooled anode at ground potential and a high voltage receptacle socket. The X-Ray proof tube housing has fittings for water hose connections. The main advantages are high power, small dimensions, low weight and rugged mechanical design.

“One Stop Shop” for Industrial X-Ray Sources: COMET’s XRS Subsystems

COMET is pleased to offer all of the necessary components for a customized X-Ray Source: The new XRS Subsystems each contain a COMET X-Ray tube, high voltage generator with cables and coolers designed for easy inte-

gration that will optimize system performance. All XRS subsystems are factory prepared and tested for hassle free installation and operation.

This novel solution demonstrates COMET’s continuous commitment and investment in delivering real added value to our worldwide customer base.

About the Business Unit Industrial X-Ray

COMET Industrial X-Ray is an experienced supplier of components and modules for industrial X-Ray applications and is proud of its reputation as the preferred engineering partner in terms of innovation potential, know how, flexibility and speed. Our product range features X-Ray tubes and sources with small focal spot resolution ($< 1 \mu\text{m}$) up to 6 kW in output for more power demanding requirements. From the smallest footprint for use in portable units to 800 kV fixed gantry systems that are suitable for cargo screening.



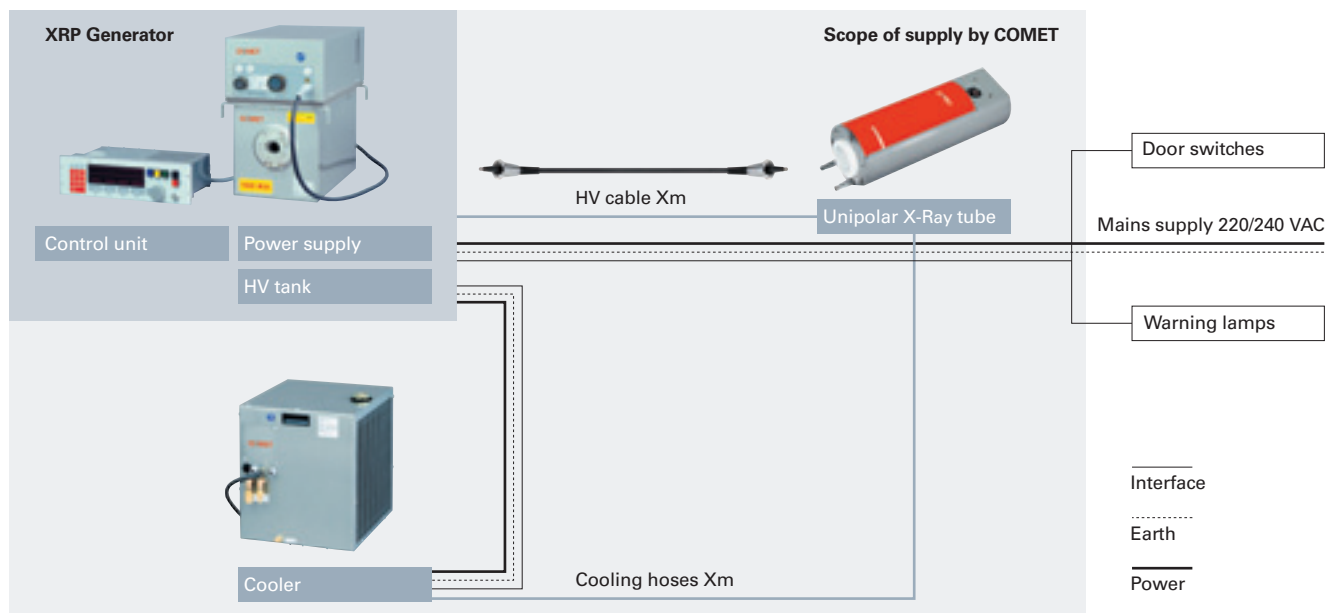
Unipolar Metal Ceramic Tubes – Configuration Information

Overview of tubes and fitting system components; high voltage generator, high voltage cable and cooler.

GENERATOR							
XRS Module	Type	Ordering No.	Voltage range (kV)	Current range (mA)	Max. power (W)	Output connector	Ordering No. flange
XRS-75	XRP-75/1000/1	20032831	5–75	0–17.5	1000	CA11	–
	XRP-75/1000/1	20032831	5–75	0–17.5	1000	CA11	–
XRS-100	XRP-100/2250/2	10008861	5 – 100	0 – 22.5	2250	R24	651136
XRS-160	XRP-160/2250/2	10008863	7.5 – 160	0 – 22.5	2250	R24	651136
	XRP-160/2250/2	10008863	7.5 – 160	0 – 22.5	2250	R24	651136
	XRP-160/2250/2	10008863	7.5 – 160	0 – 22.5	2250	R24	651136
	XRP-160/4500/2	10006465	7.5 – 160	0 – 45	4500	R24	651136
XRS-225	XRP-225/2250/2	10008864	10 – 225	0 – 15	2250	R28	10001710
	XRP-225/2250/2	10008864	10 – 225	0 – 15	2250	R28	10001710
	XRP-225/4500/2	10006466	10 – 225	0 – 30	4500	R28	10001710
	XRP-225/4500/2	10006466	10 – 225	0 – 30	4500	R28	10001710

Unipolar Metal Ceramic Tubes – Configuration Information

Overview of tubes and fitting system components; high voltage generator, high voltage cable and cooler.



TUBE

Tube type example	Ordering No.	Focal spots (EN 12543)	Terminal type	Ordering No. flange
MXR-75/30	915376.51	5.5	CA11	–
MXR-75/HP20	915377.51	0.95	CA11	–
MXR-101	915343.51	5.5	R10	651142
MXR-160/20	915317.51	1.0 / 1.0	R24	10001756
MXR-160HP/11	915370.51	0.4 / 1.0	R24	10001756
MXRP-160C	915311.51	0.4 x 4.0 (l x w)	R24	10001756
MXR-160/22	915301.51	1.0 / 5.5	R24	10001756
MXR-225HP/11	915371.51	0.4 / 1.0	R24	10001756
MXR-225/21	915325.51	0.4 / 1.1	R24	10001756
MXR-225/21	915325.51	1.0 / 3.0	R24	10001756
MXR-225/22	915326.51	1.0 / 5.5	R24	10001756

CABLE

Type	Ordering No.
L3/75-CA11-CA11-Xm	
L3/75-CA11-CA11-Xm	
U3/100-R24-R10-Xm	
N3/160-R24-R24-Xm	
N3/160-R24-R24-Xm	
N3/160-R24-R24-Xm	
N3/160-R24-R24-Xm	
P3/250-R28-R24-Xm	
P3/250-R28-R24-Xm	
P3/250-R28-R24-Xm	
P3/250-R28-R24-Xm	

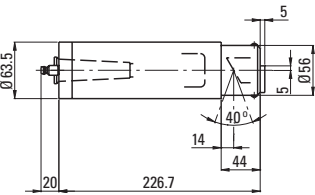
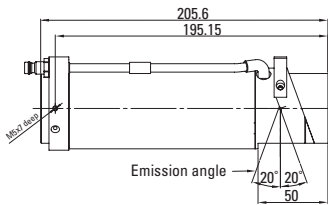
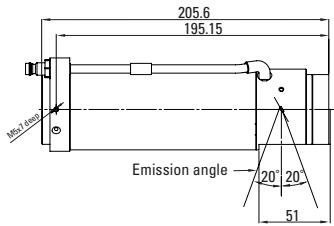
COOLER

Type	Ordering No.
XRC-1001-WA	20033773
XRC-1001-WA	20033773
XRC-3001-WA	10008640
XRC-3001-WA	10008640
XRC-3001-WA	10008640
XRC-3001-WA	10008640
XRC-3001-WW	10008641
XRC-3001-WA	10008640
XRC-3001-WA	10008640
XRC-3001-WA	10008640
XRC-3001-WW	10008641

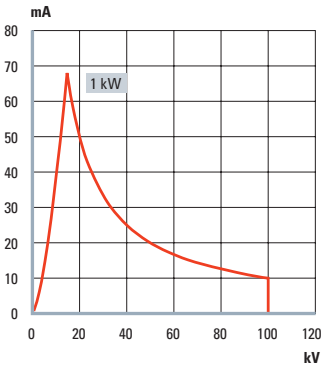
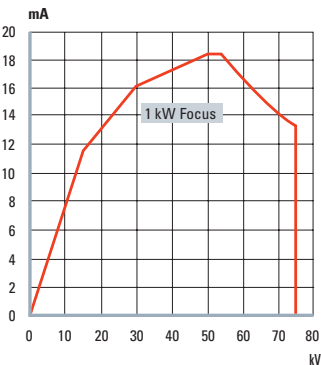
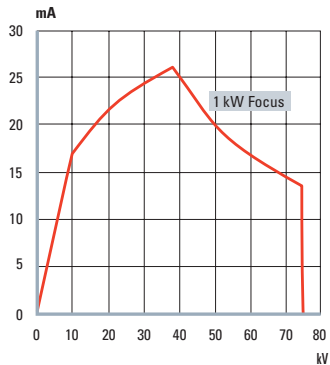


	MXR-75/30	MXR-75HP/20	MXR-101
Ordering No.	915376.51	915377.51	915343.51
Nominal tube voltage	75kV	75kV	100 kV
Continuous rating	1000W	1000W	1000 W
Focal spot acc. EN 12543	d = 5.5mm	d = 1mm	d = 5.5 mm
Filament current, max.*	3.6 A	3.7 A	4.2 A
Filament voltage, typical	5.8 V	2.8 V	7.5 V
Inherent filtration	0.8mm Be	0.8 mm Be	0.8 mm Be
Target material	W	W	W
Target angle	30°	20°	30°
Radiation coverage	40° x 40°	40° x 40°	40°
Leakage radiation, max.	0.5 mSv/h	0.5 mSv/h	–
Cooling medium	Water	Water	Water
Cooling medium flow, min.	4 l/min	4 l/min	4 l/min
Temperature at inlet, max.	40°	40°	40° C
Weight	2.1 kg	2.1 kg	3.5 kg
Terminal type	CA11	CA11	R10
Mounting flange	–	–	651142
Locking device	–	–	–

Outline drawing



Tube diagram



*Setting the maximum Filament current above 4.0A may reduce the lifetime of the Filament to less than 2000 hours.



MXR-160HP/FB

915359.51
160 kV
1000 W
d = 1.0 mm
4.1 A
3.0 V
0.8 mm Be
W
20°
60° x 25°
2.5 mSv/h
Water
4 l/min
35° C
8 kg
R24

10001756

941002

MXR-160HP/11

915370.51
160 kV
800 W / 1800 W
d = 0.4 mm* / d = 1.0 mm
4.1 A / 4.1 A
2.9 V / 7.3 V
0.8 mm Be
W
11°
40° x 30°
2.5 mSv/h
Water
4 l/min
35° C
8 kg
R24

10001756

941002

* Threshold: 30 %

MXR-160HP/20

915357.51
160 kV
1000 W / 1000 W
d = 1.0 mm / d = 1.0 mm
4.1 A / 4.1 A
4.2 V / 4.2 V
0.8 mm Be
W
20°
40°
2.5 mSv/h
Water
4 l/min
35° C
8 kg
R24

10001756

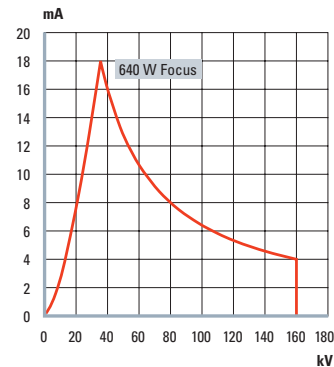
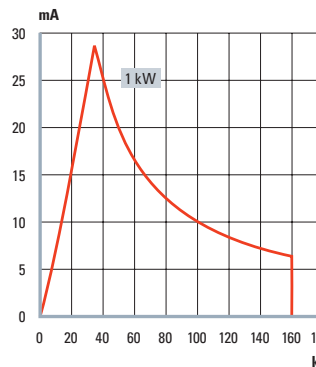
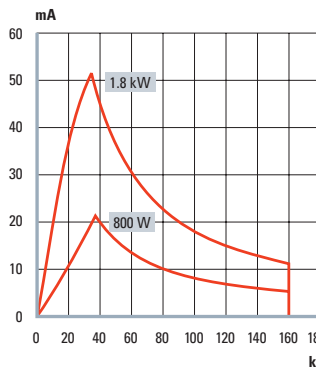
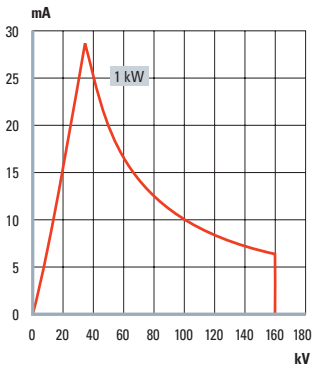
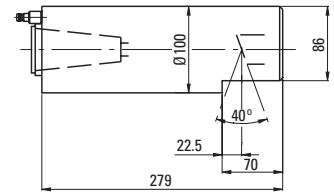
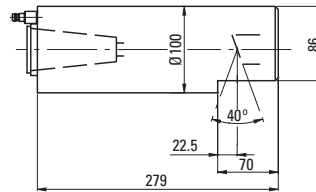
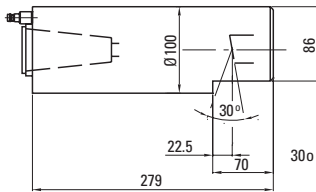
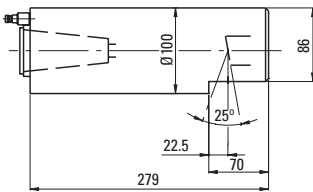
941002

MXR-160/20

915317.51
160 kV
640 W / 640 W
d = 1.0 mm / d = 1.0 mm
4.1 A / 4.1 A
4.2 V / 4.2 V
0.8 mm Be
W
20°
40°
2.5 mSv/h
Water
4 l/min
35° C
8 kg
R24

10001756

941002



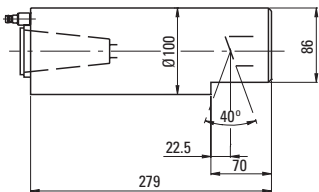
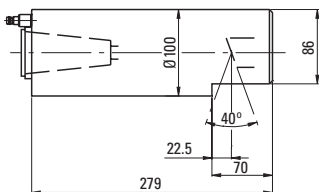
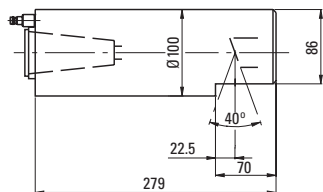


MXR-160/21	
Ordering No.	915302.51
Nominal tube voltage	160 kV
Continuous rating	640 W / 1600 W
Focal spot acc. EN 12543	d = 1.0 mm / d = 3.0 mm
Filament current, max.*	4.1 A / 4.2 A
Filament voltage, typical	4.2 V / 5.5 V
Inherent filtration	0.8 mm Be
Target material	W
Target angle	20°
Radiation coverage	40°
Leakage radiation, max.	2.5 mSv/h
Cooling medium	Water
Cooling medium flow, min.	4 l/min
Temperature at inlet, max.	35° C
Weight	8 kg
Terminal type	R24
Mounting flange	10001756
Locking device	941002

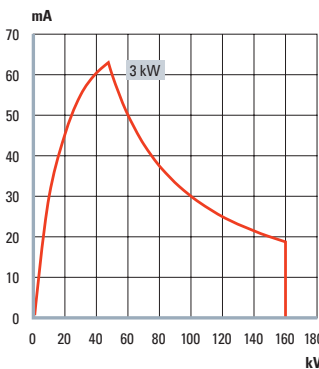
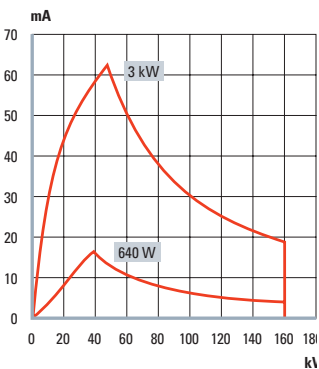
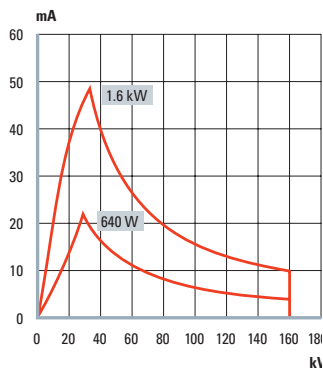
MXR-160/22	
Ordering No.	915301.51
Nominal tube voltage	160 kV
Continuous rating	640 W / 3000 W
Focal spot acc. EN 12543	d = 1.0 mm / d = 5.5 mm
Filament current, max.*	4.1 A / 4.2 A
Filament voltage, typical	3.0 V / 5.5 V
Inherent filtration	0.8 mm Be
Target material	W
Target angle	20°
Radiation coverage	40°
Leakage radiation, max.	2.5 mSv/h
Cooling medium	Water
Cooling medium flow, min.	4 l/min
Temperature at inlet, max.	35° C
Weight	8 kg
Terminal type	R24
Mounting flange	10001756
Locking device	941002

MXR-161	
Ordering No.	915343.51
Nominal tube voltage	100 kV
Continuous rating	1000 W
Focal spot acc. EN 12543	d = 5.5 mm
Filament current, max.*	4.2 A
Filament voltage, typical	7.5 V
Inherent filtration	0.8 mm Be
Target material	W
Target angle	30°
Radiation coverage	40°
Leakage radiation, max.	–
Cooling medium	Water
Cooling medium flow, min.	4 l/min
Temperature at inlet, max.	40° C
Weight	3.5 kg
Terminal type	R10
Mounting flange	651142
Locking device	–

Outline drawing



Tube diagram



*Setting the maximum Filament current above 4.0A may reduce the lifetime of the Filament to less than 2000 hours.

**MXRP-160C**

915311.51
160 kV
1000 W
$l = 0.4 \text{ mm} / w = 4.0 \text{ mm}$
4.2 A
2.7 V
0.5 mm Ti + 2.0 mm H ₂ O + 2.0 mm Al
W
22°
360° x 40°
2.5 mSv/h
Water
4 l/min
35° C
8 kg
R24

10001756
941002

**MXR-165**

915356.51
160 kV
6000 W
$d = 5.5 \text{ mm}$
4.2 A
5.5 V
4 mm Be
W
30°
45°
2.5 mSv/h
Water
5 l/min
30° C
9.4 kg
R24

10001711
940303

**MXR-225HP/11**

915371.51
225 kV
800 W / 1800 W
$d = 0.4 \text{ mm}^* / d = 1.0 \text{ mm}$
4.1 A / 4.1 A
2.9 V / 7.3 V
0.8 mm Be
W
11°
40° x 30°
5 mSv/h
Water
4 l/min
35° C
11 kg
R24

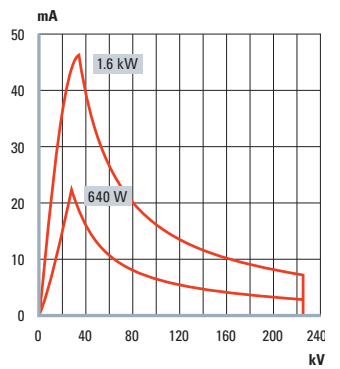
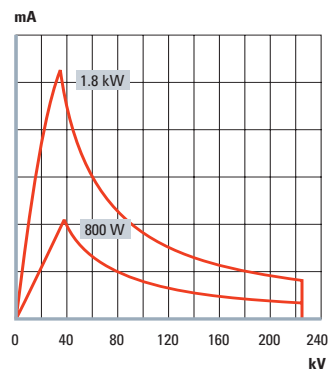
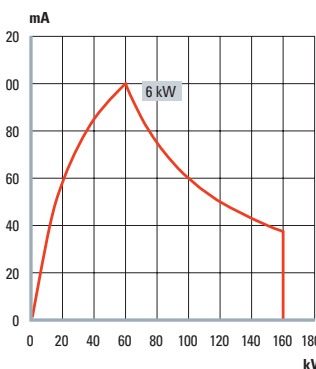
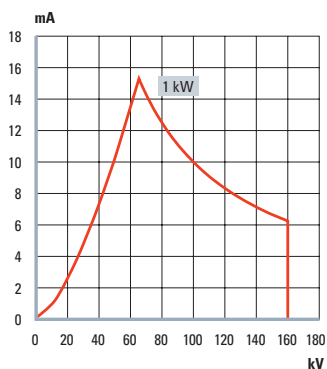
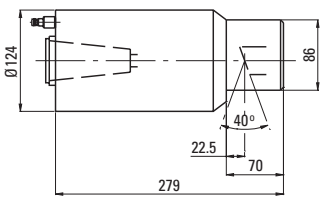
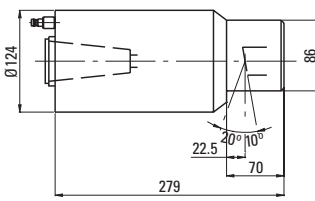
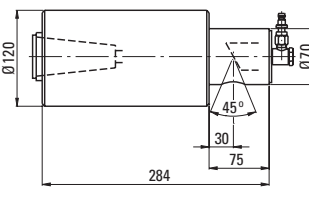
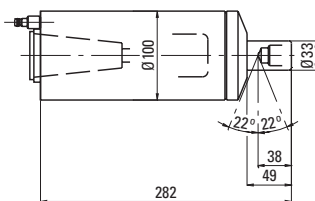
10001756
941002

*Threshold: 30 %

**MXR-225/21**

915325.51
225 kV
640 W / 1600 W
$d = 1.0 \text{ mm} / d = 3.0 \text{ mm}$
4.1 A / 4.2 A
4.2 V / 5.5 V
0.8 mm Be
W
20°
40°
10 mSv/h
Water
4 l/min
35° C
11 kg
R24

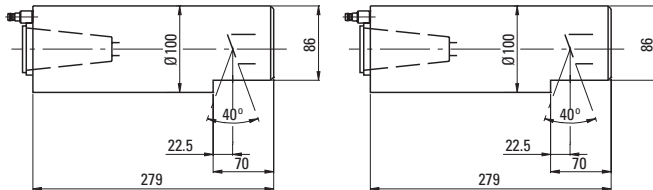
10001756
941002



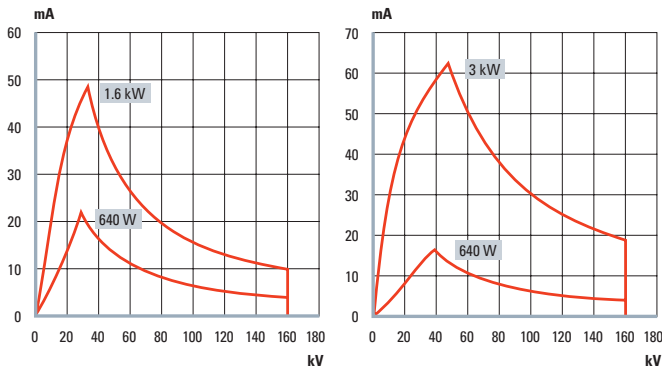


MXR-225/22		MXR-226	
Ordering No.	915326.51	915332.51	
Nominal tube voltage	225 kV	225 kV	
Continuous rating	640 W / 3000 W	3000 W	
Focal spot acc. EN 12543	d = 1.0 mm / d = 5.5 mm	d = 7.5 mm	
Filament current, max.*	4.1 A / 4.2 A	4.2 A	
Filament voltage, typical	3.0 V / 5.5 V	5.5 V	
Inherent filtration	0.8 mm Be	0.8 mm Be	
Target material	W	W	
Target angle	20°	30°	
Radiation coverage	40°	40°	
Leakage radiation, max.	10 mSv/h	10 mSv/h	
Cooling medium	Water	Water	
Cooling medium flow, min.	4 l/min	4 l/min	
Temperature at inlet, max.	35° C	35° C	
Weight	11 kg	11 kg	
Terminal type	R24	R24	
Mounting flange	10001756	10001756	
Locking device	941002	941002	

Outline drawing



Tube diagram



*Setting the maximum Filament current above 4.0A may reduce the lifetime of the Filament to less than 2000 hours.





COMET

Technology with Passion

COMET AG

Industrial X-Ray
Herrengasse 10, CH-3175 Flamatt
T +41 31 744 90 00, F +41 31 744 90 90
xray@comet.ch, www.comet.ch

COMET Technologies USA, Inc.

76 Progress Drive
Stamford, CT 06902, USA
T +1 203 969 2161, F +1 203 969 2162
xray@comet.ch, www.cometusa.com

COMET China

1201 Guiqiao Road,
Building 10, 1st floor
Pudong, Shanghai 201206/P.R. China
T +86 21 6879 9000, F +86 21 6879 9009