

# Cables, Flanges, Quick Locks

Industrial X-Ray

Overview



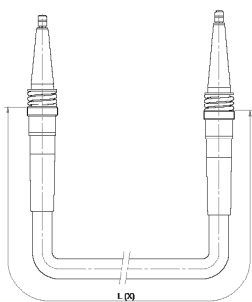
**Technical data of cables**

	<b>L3/75</b>	<b>U3/100</b>
<b>Rated voltage</b>	75 kVDC	100 kVDC
<b>Nominal outside diameter</b>	16.7 mm	20 mm
<b>Coverage shielding braid</b>	>95%	>95%
<b>Conductor resistance Bare Conductor @ 20°C</b>	6.6 mΩ/m	6.6 mΩ/m
<b>Conductor resistance Red &amp; White Cond. @ 20°C</b>	9.5 mΩ/m	9.5 mΩ/m
<b>Minimum bending radius (dynamic / stationary)</b>	66.8 mm / 33.4 mm	80 mm / 40 mm
<b>Insulation resistance (wires to shield)</b>	>1x10 <sup>12</sup> Ω·m	≥5x10 <sup>12</sup> Ω·m
<b>Capacitance (wires to shield)</b>	145 pF/m	136 pF/m
<b>Max. operating temperature</b>	70° C	+70° C
<b>Bending radius (stationary)</b>	2 x D	2 x D
<b>Bending radius (dynamic)</b>	4 x D	4 x D

**Standard cable length at maximum voltage rating**

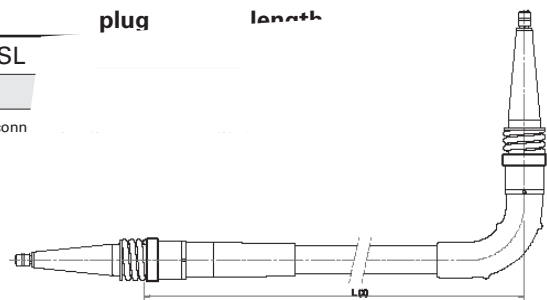
	<b>XRS-100</b>	<b>iXRS-160</b>	<b>iXRS-225</b>	<b>iXRS-320</b>	<b>iXRS-450</b>	<b>XRS-600</b>
<b>5m</b>	100kV	160kV	225kV	320kV	450kV	600kV
<b>10m</b>	100kV	160kV	225kV	320kV	450kV	-
<b>15m</b>	100kV	160kV	225kV	320kV	450kV	-
<b>20m</b>	100kV	160kV	220kV	315kV	440kV	-
<b>25m</b>	100kV	160kV	210kV	310kV	420kV	-
<b>30m</b>	95kV	155kV	200kV	310kV	400kV	-
<b>35m</b>	95kV	155kV	200kV	310kV	400kV	-

**Ordering Example**



	<b> cable</b>	<b> plug</b>	<b> plug</b>	<b> length</b>
<b>Cable</b>	N3/160	R24 SL		
<b>Flange</b>	4512-104-87121			

Example: 160 kV cable with straight and rectangular conn



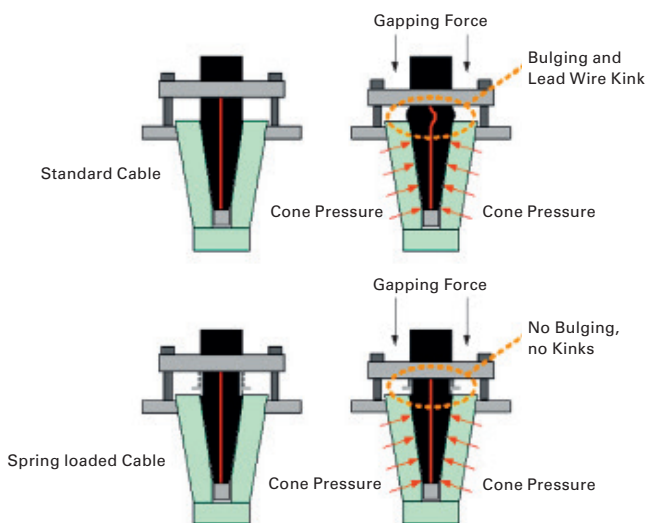
**Compatibility cable / plug**

<b>CABLE</b>	<b>CA11</b>	<b>R10</b>	<b>R24</b>	<b>R24 RA</b>
<b>L3/75 cable</b>	75 kV	75 kV	75 kV	75 kV
<b>U3/100 cable</b>	-	100 kV	100 kV	100 kV
<b>N3/160 cable</b>	-	-	160 kV	160 kV
<b>P3/250 cable</b>	-	-	225 kV	225 kV
<b>F3/300 cable</b>	-	-	-	-

Within the high voltage system the part with the lowest specified high voltage rating defines the maximum allowed voltage.

N3/160	P3/250	F3/300
160 kVDC	250 kVDC	300 kVDC
29 mm +/- 1.5	36 mm +/- 1.5	51 mm
>95%	>80%	appr. 90%
6.6 mΩ/m	6.6 mΩ/m	1.0 mΩ/m
11.4 mΩ/m	11.4 mΩ/m	13.7 mΩ/m
116 mm / 58 mm	144 mm / 72 mm	306 mm / 204 mm
$\geq 1 \times 10^{12} \Omega \cdot m$	$\geq 1 \times 10^{12} \Omega \cdot m$	$1 \times 10^{12} \Omega \cdot m$
126 pF/m	107 pF/m	112 pF/m
+70° C	+70° C	+ 90° C
2 x D	2 x D	4 x D
4 x D	4 x D	6 x D

### Standard vs. Spring-loaded



### Advantage of Spring-loaded cable

#### What is different?

- Spring-loaded cables replace the elastomeric spring by a mechanical spring

#### What are the effects?

- Constant pressure in the receptacle over time, since the metal section and spring of the cable replaces the rubber where bulging normally occurs
- Installation is simplified
- No over-gapping possible
- Reduction of discharges in the interface
- Improved field distribution at the transition cable – receptacle
- Eliminates need of re-gapping 24 hours after initial installation

#### How do you benefit?

All of this results in:

- Higher system up-time
- Lower installation costs
- Lower maintenance costs
- Longer lifetime of cable and tube

### UL Certification Nummer E187096

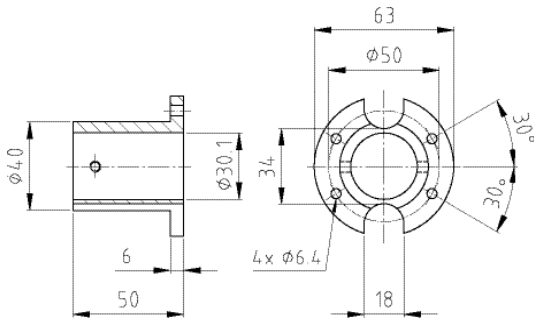
For High-voltage Receptacles and Cable Assemblies for Use in X-Ray Equipment-Component

	R28	R28 RA	R30	R30 RA
	-	-	-	-
	-	-	-	-
	160 kV	160 kV	160 kV	160 kV
	225 kV	225 kV	225 kV	225 kV
	-	-	300 kV	-

**Flanges R10 / R10SL**

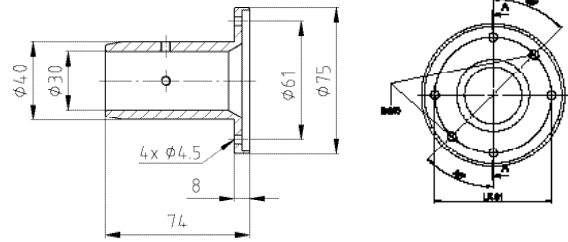
**R10 cable flange**

651142



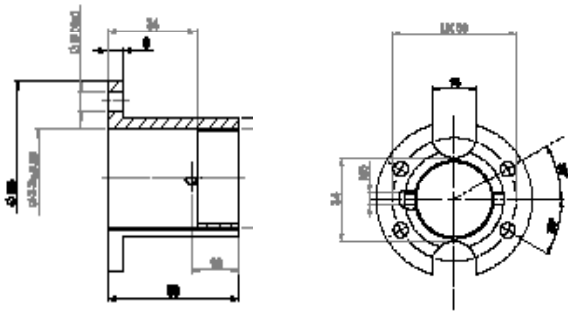
**R10 cable flange**

10001700



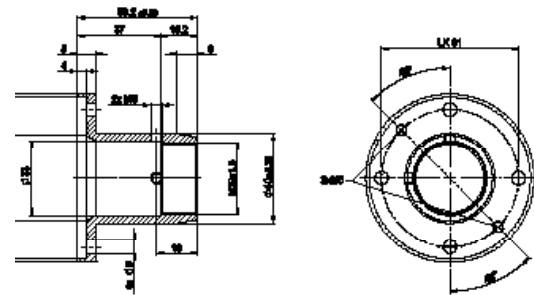
**R10SL cable flange**

20052838



**R10SL cable flange**

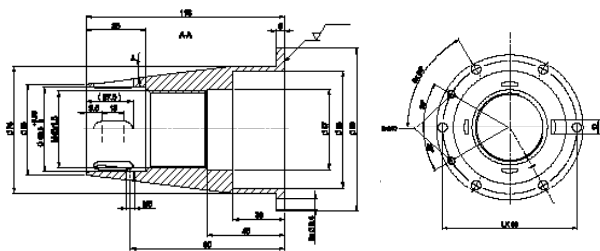
20052839



**Flanges R24SL**

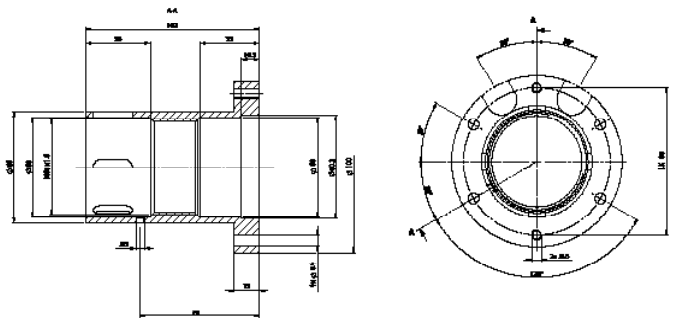
**R24SL cable flange**

4512-104-87141



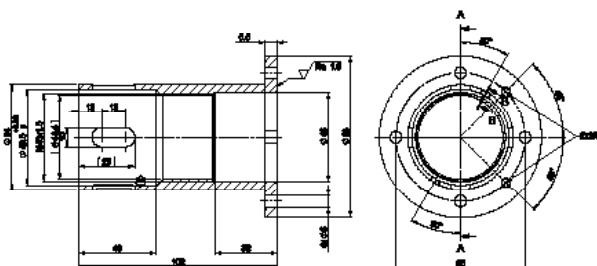
**R24SL cable flange**

4512-104-87131



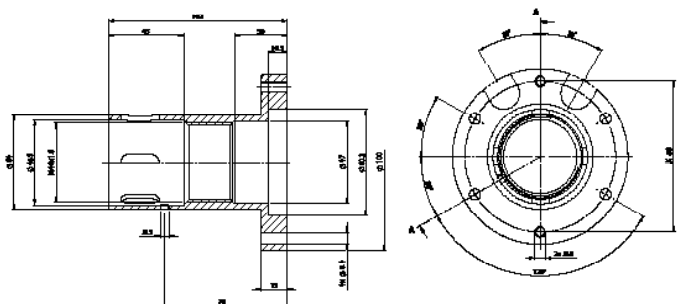
**R24SL cable flange**

4512-104-87101



**R24SL cable flange**

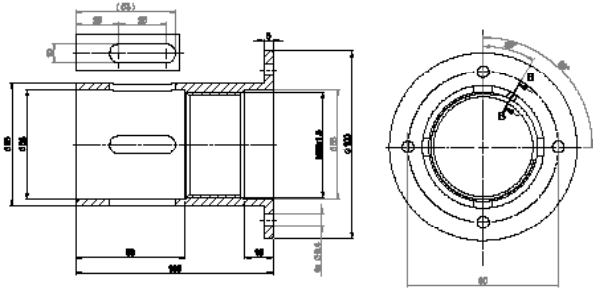
4512-104-87121



**Flanges R28SL**

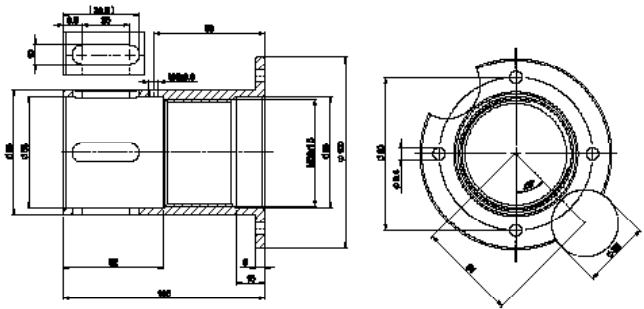
**R28SL cable flange**

4512-104-87111



**R28SL cable flange**

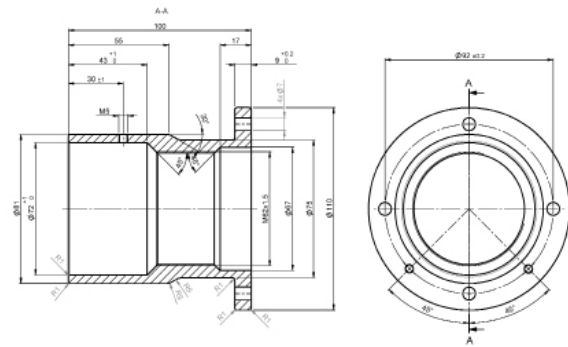
20032631



**Flanges R30**

**R30 cable flange**

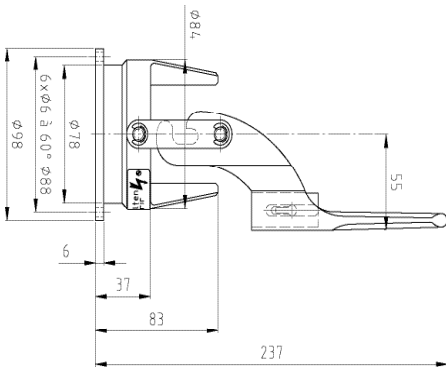
20104877



**Locking devices / Clamping sleeve**

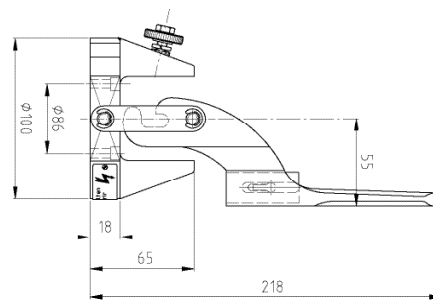
**R24 locking device**

940303



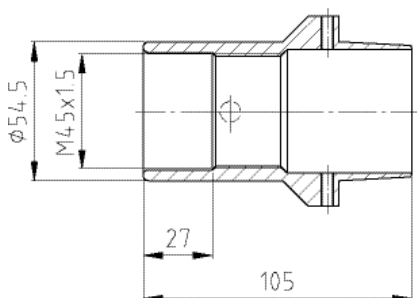
**R24 locking device**

941002



**R24 clamping sleeve**

651053



**Configuration spring-loaded plug with flange**

Tubes										
Cable flange	Amount	MXR-101	CXR-10X	CXR-150 MXR-165	MXR-160	MXR-225	MXR-320	MXR-420	MXR-45X	MXC-451
20052838	1	R10SL								
20052839	1		R10SL							
4512-104-87121	1				R24SL	R24SL*				
4512-104-87131	1					R24SL				
4512-104-87141	2			R24SL			R24SL			
4512-104-87111	2							R28SL	R28SL	
20032631	2									R28SL

\*when using N3/160 cables (M45x1.5)

Generators						
Cable flange	Amount	T100K	T160K	T225K	T320A	T450A
4512-104-87101	1	R24SL	R24SL		R24SL	
4512-104-87111	1			R28SL		R28SL

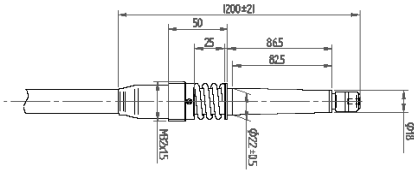
**Configuration non-spring-loaded plug with flange**

Tubes													
Cable flange	Locking Devices	Amount	MXR-75	MXR-101	CXR-10X	CXR-150 MXR-165	MXR-160	MXR-225	MXR-320	MXR-420	MXR-45X	MXC-451	MXR-600
			CA11										
651142		1		R10									
10001700		1			R10								
4512-104-87121	941002/651053	1					R24	R24					
4512-104-87141	940303/651053	2				R24			R24				
4512-104-87111		2								R28	R28		
20032631		2										R28	
20104877		2											R30

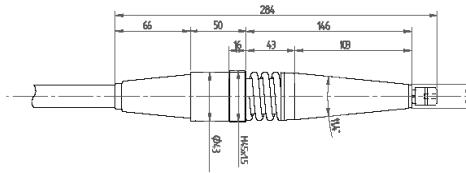
Generators								
Cable flange	Amount	T100K	T160K	T225K	T300K	T320A	T450A	T600A
4512-104-87101	1	R24	R24			R24		
4512-104-87111	1			R28			R28	
20104877	2				R30			R30

## Spring-Loaded Plugs

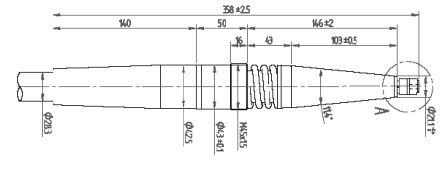
**R10SL with U3 cable**



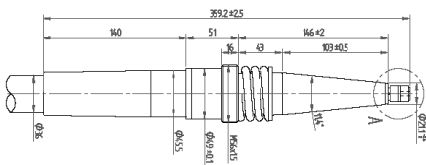
**R24SL with U3 cable**



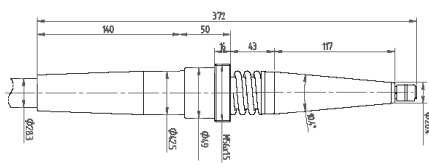
**R24SL with N3 cable**



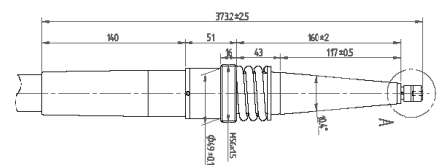
**R24SL with P3 cable**



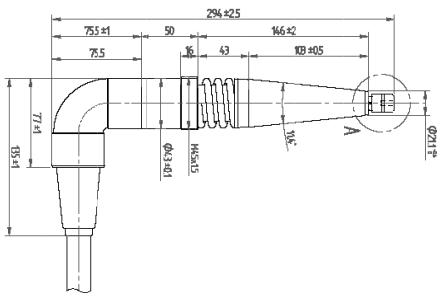
**R28SL with N3 cable**



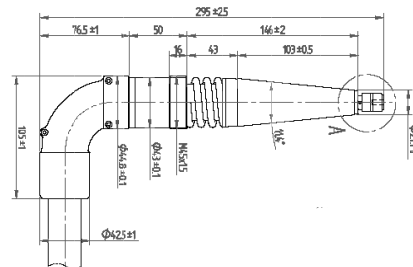
**R28SL with P3 cable**



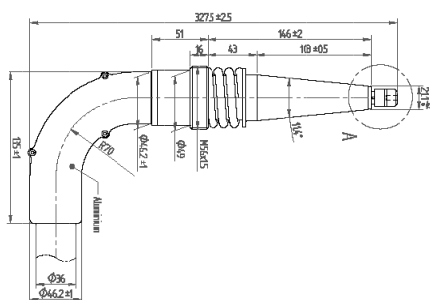
**R24RASL with U3 cable**



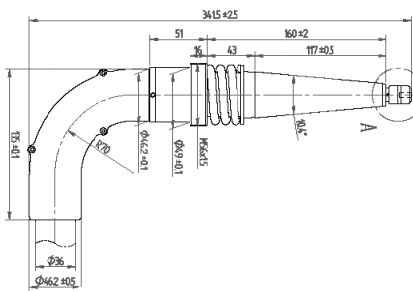
**R24RASL with N3 cable**



**R24RASL with P3 cable**

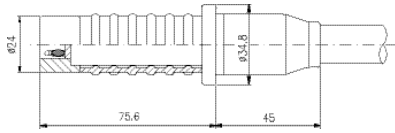


**R28RASL with P3 cable**

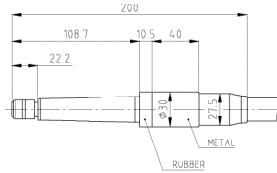


## Non-Spring-loaded Plugs

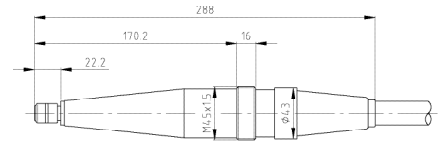
**CA11 with L3 cable**



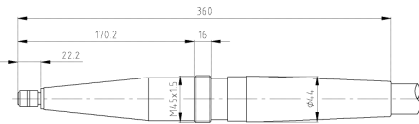
**R10 with U3 cable**



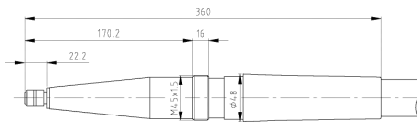
**R24 with U3 cable**



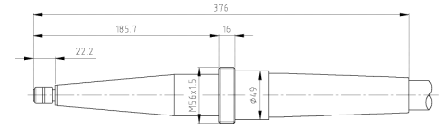
**R24 with N3 cable**



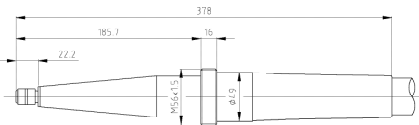
**R24 with P3 cable**



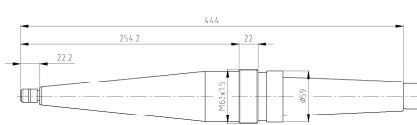
**R28 with N3 cable**



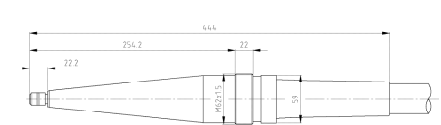
**R28 with P3 cable**



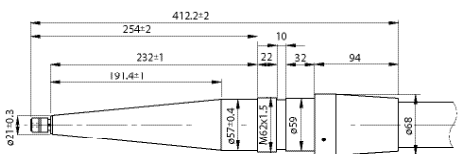
**R30 with N3 cable**



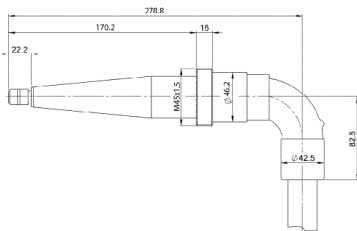
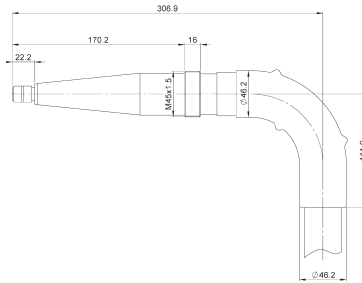
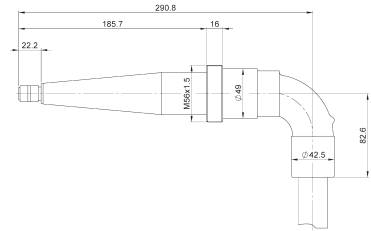
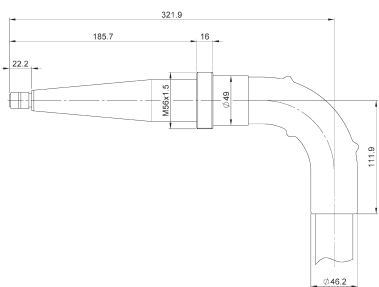
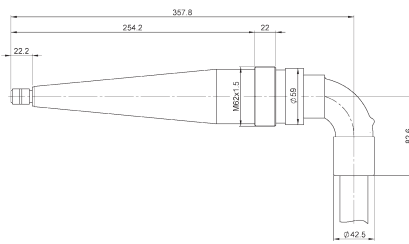
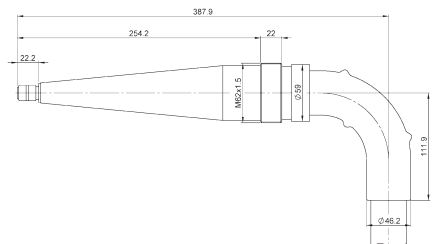
**R30 with P3 cable**



**R30 with F3 cable**





**R24 RA with N3 cable****R24 RA with P3 cable****R28 RA with N3 cable****R28 RA with P3 cable****R30 RA with N3 cable****R30 RA with P3 cable**



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