

## Introduction

### Insulators

Electrical insulators are metal sleeves brazed at both ends with a non-conductive ceramic tube. They prevent the current flow between electric conductors and can also be used as a conduit to introduce gases or liquids into hermetically sealed systems.

#### Cryogenics

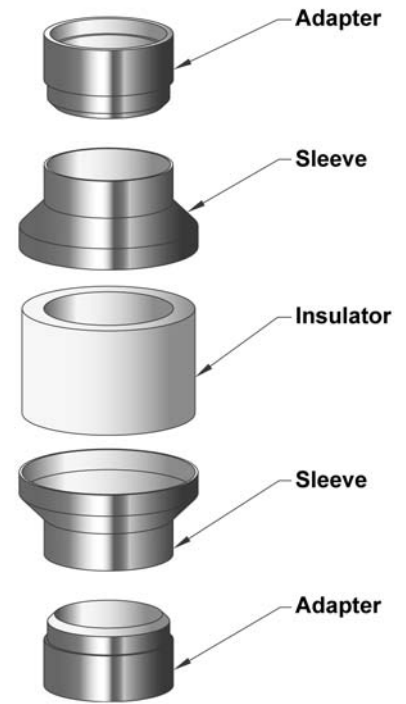
The insulators are used to introduce cryogenic fluids into systems and to provide electrical isolation of pipe components. Temperature range: -269 °C to 450 °C

#### Water

The insulators are used to introduce water or other fluids into a system and to provide electrical isolation of pipe components.

#### Vacuum

The insulators are used to interrupt the current flow between the vacuum system and other external components.



# Insulators

## Vacuum

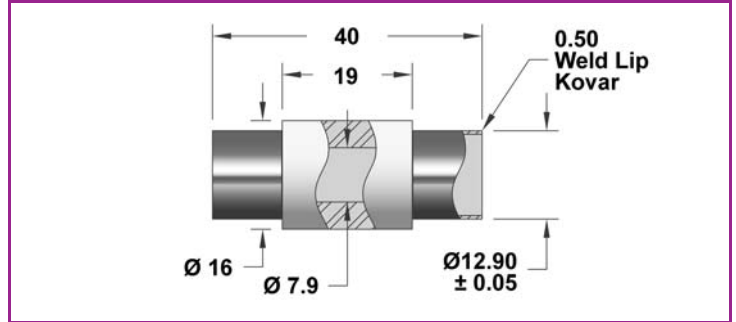
Voltage: 15 kV

### Technical data

■ Magnetic	yes
■ Inner diameter	7.9 mm
■ Welding connection diameter	12.9 mm

### Material

■ Tube	Kovar®
■ Insulator	alumina ceramics



Voltage: 15 kV



Order code	Flange	Temperature range (°C)	Pressure, 20 °C (bar)
<b>W-ISO15-CE-KOV129</b>	-	-55 to 450	61
<b>KF16-ISO15-CE-KOV129</b>	DN16KF	-25 to 205	7*
<b>CF16-ISO15-CE-KOV129</b>	DN16CF	-55 to 450	61

\* With trapped centering ring and clamp chain

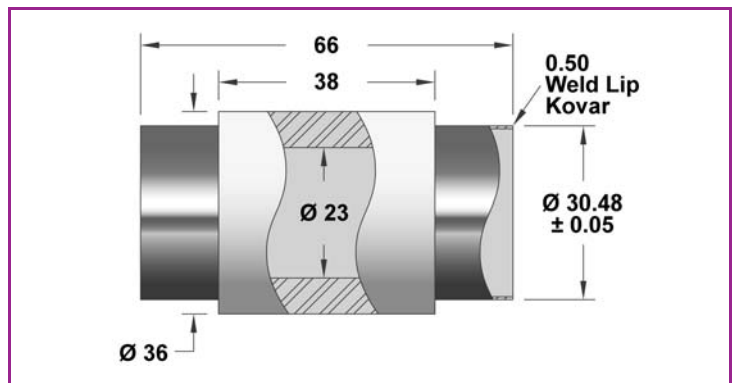
Voltage: 30 kV

### Technical data

■ Magnetic	yes
■ Inner diameter	23 mm
■ Welding connection diameter	30.5 mm

### Material

■ Tube	Kovar®
■ Insulator	alumina ceramics



Voltage: 30 kV



Order code	Flange	Temperature range (°C)	Pressure, 20 °C (bar)
<b>W-ISO30M-CE-KOV305</b>	-	-55 to 450	24
<b>KF40-ISO30M-CE-KOV305</b>	DN40KF	-25 to 205	6*
<b>CF40-ISO30M-CE-KOV305</b>	DN40CF	-55 to 450	24

\* With trapped centering ring and clamp chain

## Vacuum

Voltage: 6 - 35 kV, Kovar®

### Technical data

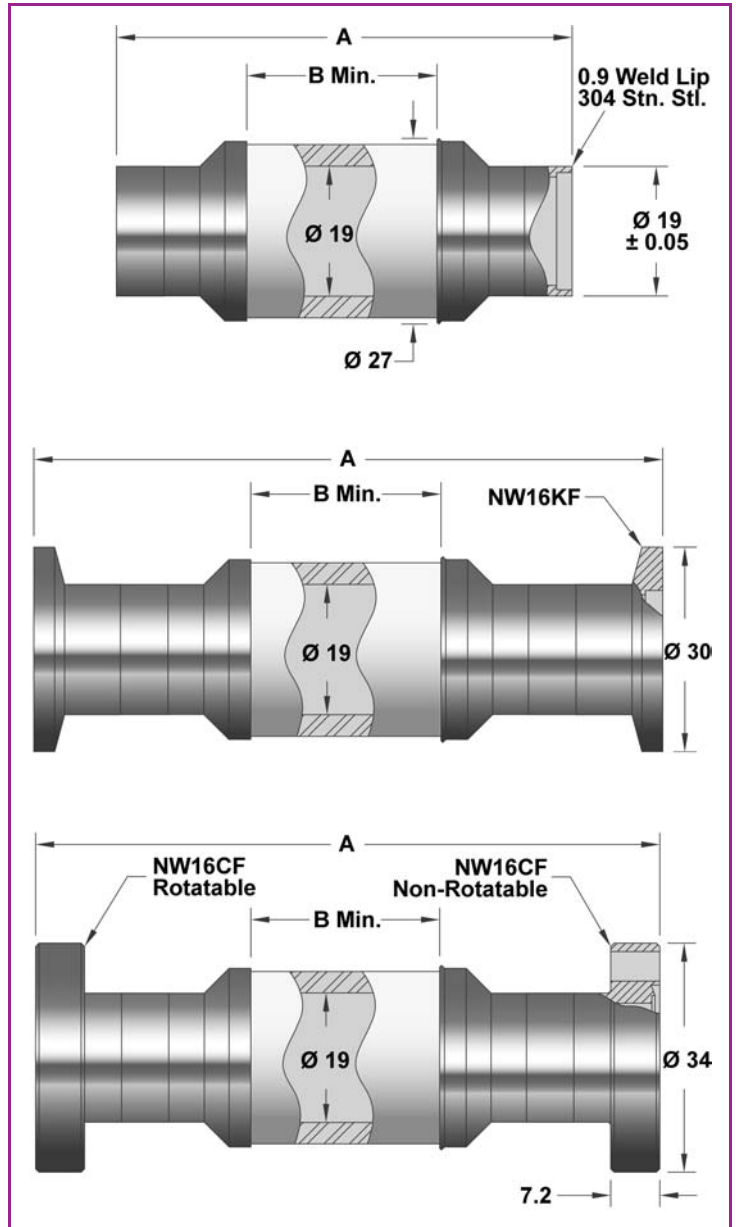
■ Magnetic	yes
■ Inner diameter	19 mm
■ Welding connection diameter	17.2 mm

### Material

■ Tube	Kovar®
■ Insulator	alumina ceramics

### Temperature range

■ Without flange	-55 °C to 450 °C
■ On KF flange	-25 °C to 205 °C
■ On CF flange	-55 °C to 450 °C

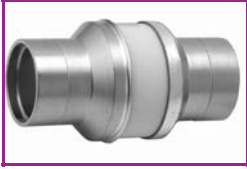


# Insulators

## Vacuum

Voltage: 6 - 35 kV, Kovar®

### Without flange



Order code	Voltage (kV)	A	B	Pressure, 20 °C (bar)
W-ISO6M-CE-KOV172	6	48	6.3	34
W-ISO25M-CE-KOV172	20	67	25	34
W-ISO35M-CE-KOV172	35	92	51	34

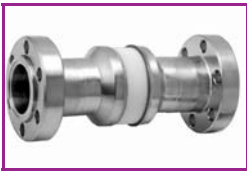
### On KF flange



Order code	Flange	Voltage (kV)	A	B	Pressure, 20 °C * (bar)
KF16-ISO6M-CE-KOV172	DN16KF	6	73	6.3	7
KF16-ISO25M-CE-KOV172	DN16KF	20	92	25	7
KF16-ISO35M-CE-KOV172	DN16KF	35	118	51	7

\* With trapped centering ring and clamp chain

### On CF flange



Order code	Flange	Voltage (kV)	A	B	Pressure, 20 °C (bar)
CF16-ISO6M-CE-KOV172	DN16CF	6	73	6.3	34
CF16-ISO25M-CE-KOV172	DN16CF	20	92	25	34
CF16-ISO35M-CE-KOV172	DN16CF	35	118	51	34

## Vacuum

Voltage: 6 - 35 kV, stainless steel

### Technical data

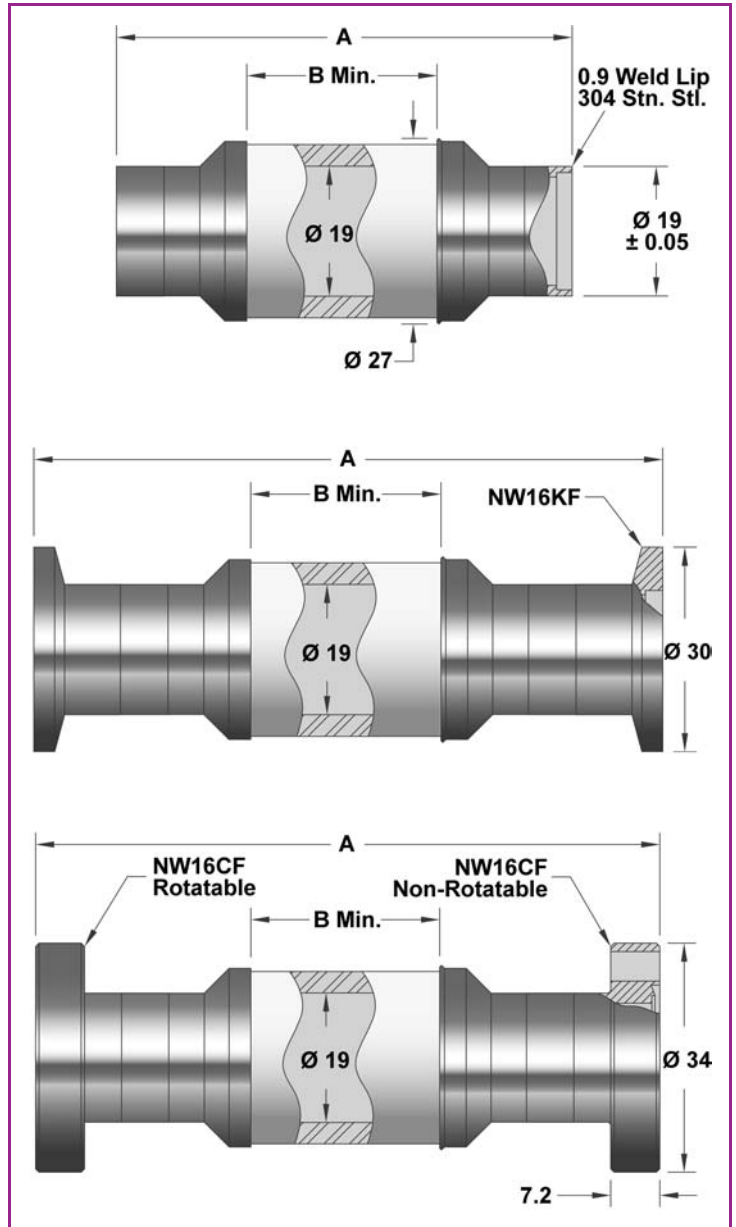
■ Magnetic	no
■ Inner diameter	19 mm
■ Welding connection diameter	17.2 mm

### Material

■ Tube	stainless steel 304
■ Insulator	alumina ceramics

### Temperature range

■ Without flange	-269 °C to 450 °C
■ On KF flange	-25 °C to 205 °C
■ On CF flange	-269 °C to 450 °C

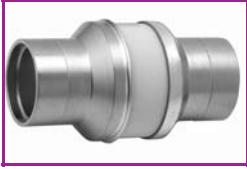


# Insulators

## Vacuum

Voltage: 6 - 35 kV, stainless steel

### Without flange



Order code	Voltage (kV)	A	B	Pressure, 20 °C (bar)
W-ISO6-CE-SS172	6	48	6.3	24
W-ISO25-CE-SS172	20	67	25	24
W-ISO35-CE-SS172	35	92	51	24

### On KF flange



Order code	Flange	Voltage (kV)	A	B	Pressure, 20 °C * (bar)
KF16-ISO6-CE-SS172	DN16KF	6	73	6.3	7
KF16-ISO25-CE-SS172	DN16KF	20	92	25	7
KF16-ISO35-CE-SS172	DN16KF	35	118	51	7

\* With trapped centering ring and clamp chain

### On CF flange



Order code	Flange	Voltage (kV)	A	B	Pressure, 20 °C (bar)
CF16-ISO6-CE-SS172	DN16CF	6	73	6.3	24
CF16-ISO25-CE-SS172	DN16CF	20	92	25	24
CF16-ISO35-CE-SS172	DN16CF	35	118	51	24

## Vacuum

Voltage: 5 - 65 kV, Kovar®

### Technical data

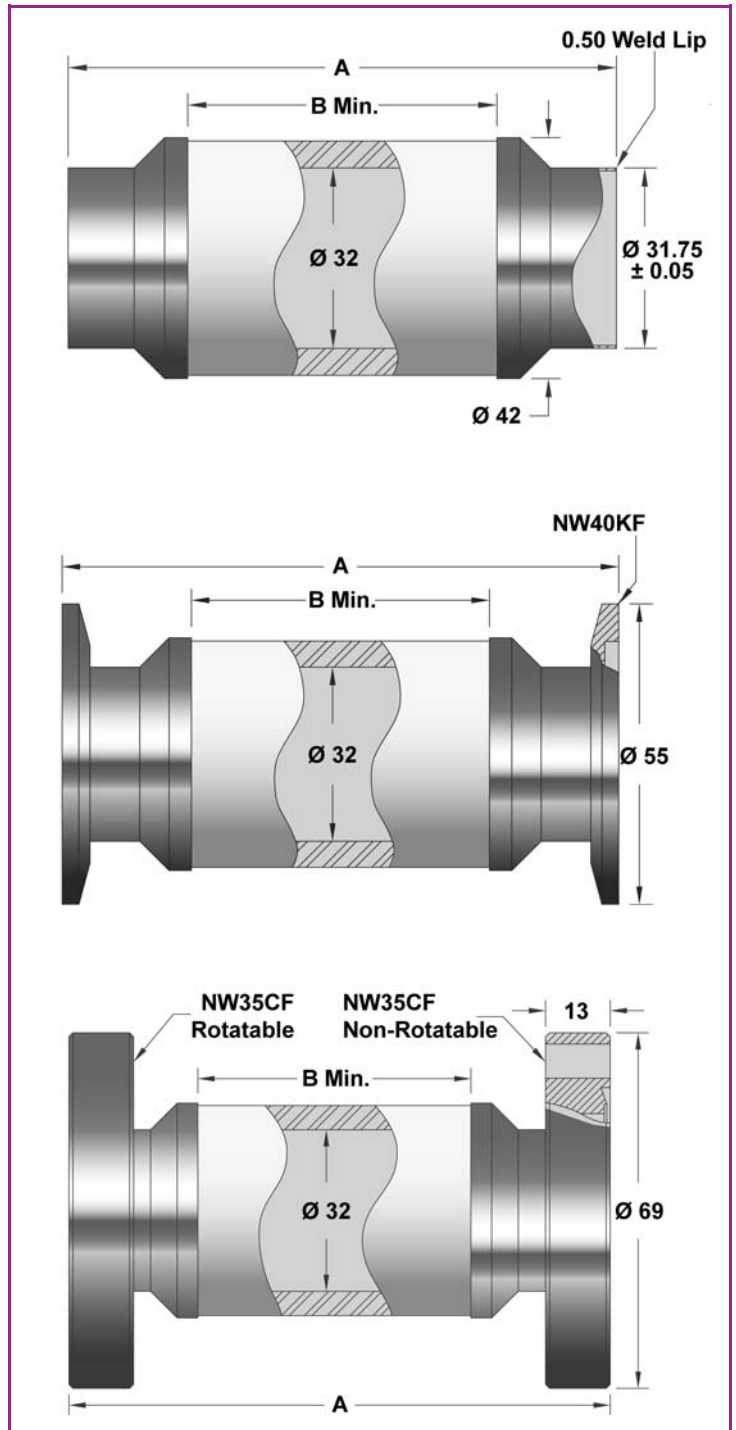
■ Magnetic	yes
■ Inner diameter	32 mm
■ Welding connection diameter	31.8 mm

### Material

■ Tube	Kovar®
■ Insulator	alumina ceramics

### Temperature range

■ Without flange	-55 °C to 450 °C
■ On KF flange	-25 °C to 205 °C
■ On CF flange	-55 °C to 450 °C

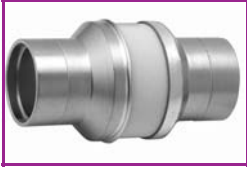


# Insulators

## Vacuum

Voltage: 5 - 65 kV, Kovar®

### Without flange



Order code	Voltage (kV)	A	B	Pressure, 20 °C (bar)
W-ISO5M-CE-KOV318	5	49	6	24
W-ISO35M-CE-KOV318	35	96	50	24
W-ISO65M-CE-KOV318	65	144	99	24

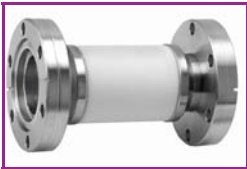
### On KF flange



Order code	Flange	Voltage (kV)	A	B	Pressure, 20 °C * (bar)
KF40-ISO5M-CE-KOV318	DN40KF	5	54	4.0	6
KF40-ISO35M-CE-KOV318	DN40KF	35	101	50	6
KF40-ISO65M-CE-KOV318	DN40KF	65	149	99	6

\* With trapped centering ring and clamp chain

### On CF flange



Order code	Flange	Voltage (kV)	A	B	Pressure, 20 °C (bar)
CF40-ISO5M-CE-KOV318	DN40CF	5	59	4.0	24
CF40-ISO35M-CE-KOV318	DN40CF	35	107	50	24
CF40-ISO65M-CE-KOV318	DN40CF	65	155	99	24

## Vacuum

Voltage: 5 - 65 kV, stainless steel

### Technical data

■ Magnetic	no
■ Inner diameter	32 mm
■ Welding connection diameter	31.8 mm

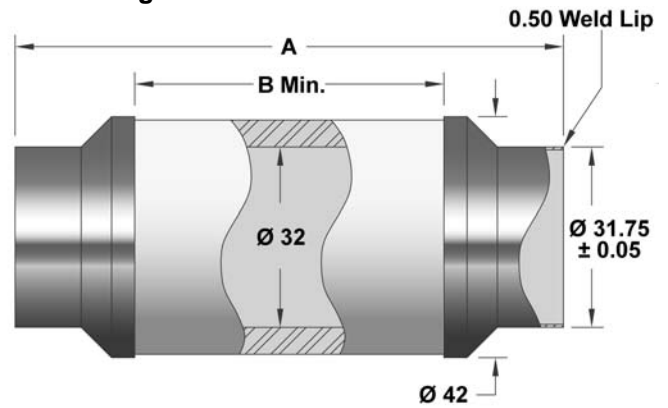
### Material

■ Tube	stainless steel 304
■ Insulator	alumina ceramics

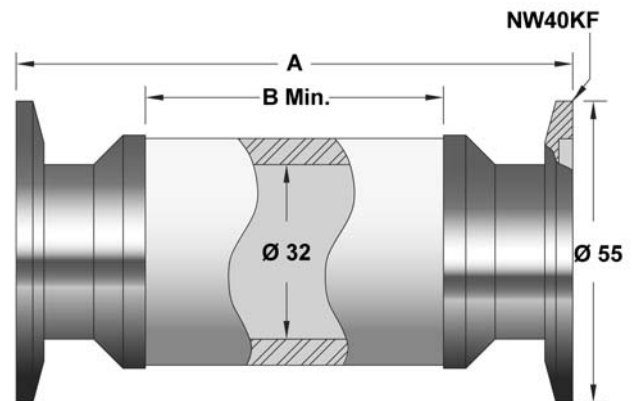
### Temperature range

■ Without flange	-269 °C to 450 °C
■ On KF flange	-25 °C to 205 °C
■ On CF flange	-269 °C to 450 °C

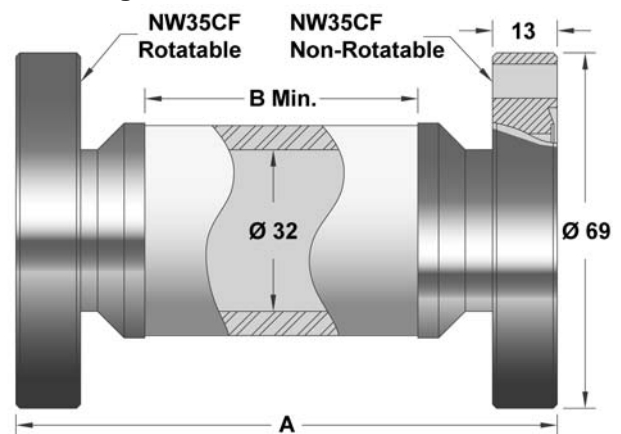
without flange



on KF flange



on CF flange

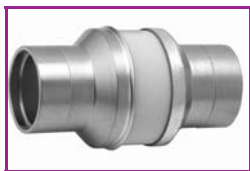


# Insulators

## Vacuum

Voltage: 5 - 65 kV, stainless steel

### Without flange



Order code	Voltage (kV)	A	B	Pressure, 20 °C (bar)
W-ISO5-CE-SS318	5	49	4.0	17
W-ISO35-CE-SS318	35	96	50	17
W-ISO65-CE-SS318	65	144	99	17

### On KF flange



Order code	Flange	Voltage (kV)	A	B	Pressure, 20 °C * (bar)
KF40-ISO5-CE-SS318	DN40KF	5	54	4.0	6
KF40-ISO35-CE-SS318	DN40KF	35	101	50	6
KF40-ISO65-CE-SS318	DN40KF	65	149	99	6

\* With trapped centering ring and clamp chain

### On CF flange



Order code	Flange	Voltage (kV)	A	B	Pressure, 20 °C (bar)
CF40-ISO5-CE-SS318	DN40CF	5	59	4.0	17
CF40-ISO35-CE-SS318	DN40CF	35	107	50	17
CF40-ISO65-CE-SS318	DN40CF	65	155	99	17

# Insulators

## Vacuum

Voltage: 40 - 60 kV, Kovar® weld lip

### Technical data

■ Magnetic yes

### Material

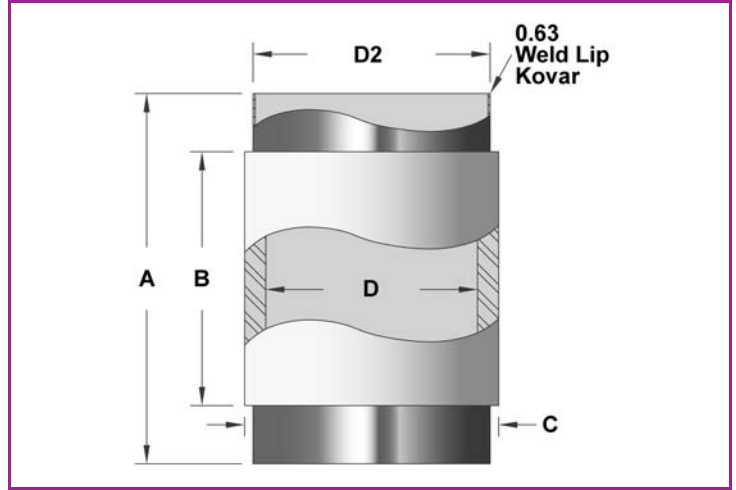
■ Tube Kovar®  
 ■ Insulator alumina ceramics

### Temperature range

■ -55 °C to 450 °C

### Pressure (20 °C)

■ KOV603 12 bar  
 ■ KOV711 10 bar



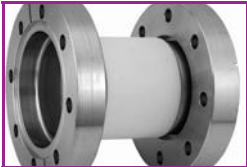
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### Without flange



Order code	Voltage (kV)	A	B	C	D	D2
W-ISO40M-CE-KOV603	40	86	51	64	51	60.3
W-ISO60M-CE-KOV711	60	111	76	76	64	71.1

### On CF flange



Order code	Flange	Voltage (kV)
CF63-ISO40M-CE-KOV603	DN63CF	40
CF100-ISO60M-CE-KOV711	DN100CF	60

# Insulators

## Vacuum

Voltage: 20 - 60 kV, NiFe weld lip

### Technical data

■ Magnetic yes

### Material

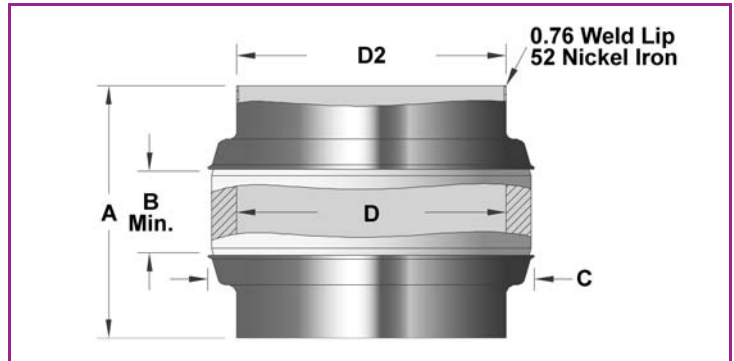
■ Tube NiFe  
 ■ Insulator alumina ceramics

### Temperature range

■ -269 °C to 450 °C

### Pressure (20 °C)

■ NiFe635 5 bar  
 ■ NiFe1016 4 bar



### Without flange



Order code	Voltage (kV)	A	B	C	D	D2
W-ISO20M-CE-NIFE635	20	95	23	85	64	63.5
W-ISO60M-CE-NIFE635	60	165	93	85	64	63.5
W-ISO20M-CE-NIFE1016	20	95	23	123	102	101.6
W-ISO60M-CE-NIFE1016	60	165	93	123	102	92.7

### On CF flange



Order code	Flange	Voltage (kV)
CF63-ISO20M-CE-NIFE635	DN63CF	20
CF63-ISO60M-CE-NIFE635	DN63CF	60
CF100-ISO20M-CE-NIFE1016	DN100CF	20
CF100-ISO60M-CE-NIFE1016	DN100CF	60

## Vacuum

Voltage: 30 - 75 kV, NiFe weld lip

### Technical data

■ Magnetic yes

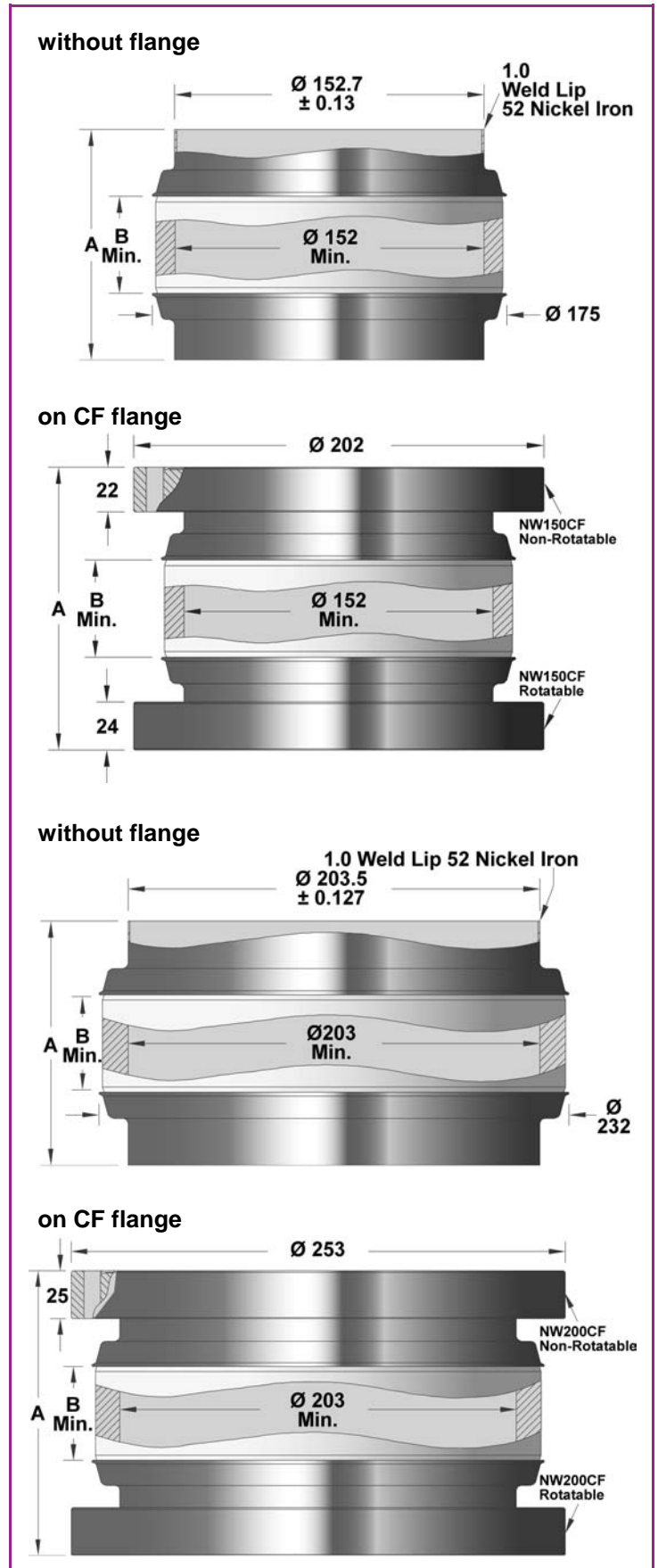
### Material

■ Tube NiFe  
 ■ Insulator alumina ceramics

### Temperature range

■ -269 °C to 450 °C

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# Insulators

## Vacuum

Voltage: 30 - 75 kV, NiFe weld lip

### Without flange



Order code	Voltage (kV)	A	B	Pressure, 20 °C (bar)
W-ISO30M-CE-NIFE1527	30	114	38	2.7
W-ISO55M-CE-NIFE1527	55	152	76	2.7
W-ISO75M-CE-NIFE1527	75	190	114	2.7
W-ISO30M-CE-NIFE2035	30	121	38	2
W-ISO55M-CE-NIFE2035	55	159	76	2
W-ISO75M-CE-NIFE2035	75	197	114	2

### On CF flange



Order code	Flange	Voltage (kV)	A	B	Pressure, 20 °C (bar)
CF160-ISO30M-CE-NIFE1527	DN160CF	30	140	38	2.7
CF160-ISO55M-CE-NIFE1527	DN160CF	55	178	76	2.7
CF160-ISO75M-CE-NIFE1527	DN160CF	75	216	114	2.7
CF200-ISO30M-CE-NIFE2035	DN200CF	30	146	38	2
CF200-ISO55M-CE-NIFE2035	DN200CF	55	184	76	2
CF200-ISO75M-CE-NIFE2035	DN200CF	75	222	114	2

# Insulators

## Cryogenic

Voltage: 6 kV, without flange

### Technical data

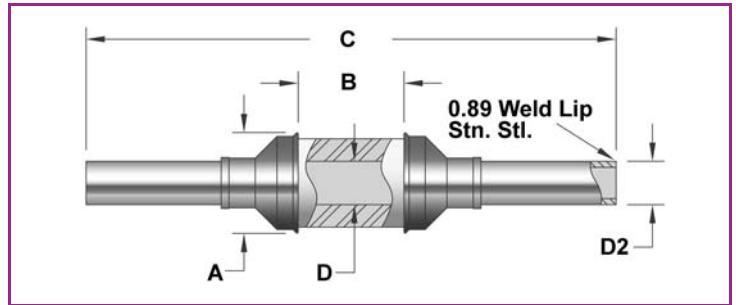
■ Magnetic yes

### Material

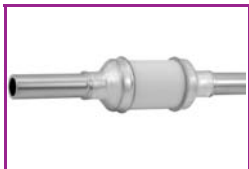
■ Tube stainless steel 304  
 ■ Insulator alumina ceramics

### Temperature range

■ -269 °C to 450 °C



Voltage: 6 kV, without flange



Order code	Voltage (kV)	A	B	C	D	D2	Pressure, 20 °C (bar)
W-KR6-SST32	6	7.3	5	43	2.7	3.2	68
W-KR13-SST64	13	15	13	78	6.4	6.4	61
W-KR13-SST64I	13	13	13	76	6.4	6.4	61
W-KR13-SST96	13	16	13	76	10	9.6	27

## Water

Voltage: 5 kV, without flange

### Technical data

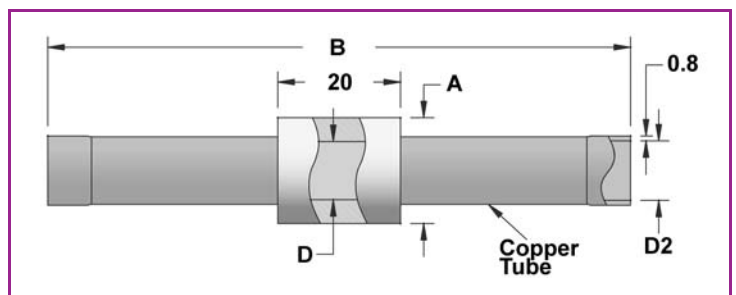
■ Magnetic no

### Material

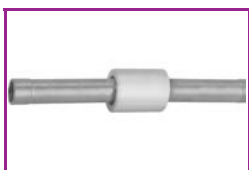
■ Tube copper  
 ■ Insulator alumina ceramics

### Temperature range

■ 0 °C to 100 °C



Voltage: 5 kV, without flange



Order code	A	B	D	D2	Pressure, 20 °C (bar)
W-W5-CE-66	14	97	8.1	6.6	30
W-W5-CE-98	17	97	11	9.8	20
W-W5-SE-129	21	97	14	12.95	13

- The temperature range can be enlarged by using other liquids.
- Application only with distilled, deionised and demineralised water.