PRODUCT CATALOGUE

ITL
Vacuum
Components

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ITL a trusted supplier in the specialist vacuum engineering industry.

ITL Vacuum Components are manufacturers and suppliers of standard and custom products for the world wide vacuum market.

Prompt delivery from stock and custom manufacturing and design.

ITL has invested in the resources required to produce high volume vacuum hardware for the OEM industry. Our comprehensive range is manufactured to the highest quality standards, enabling you to order 'off-the-shelf' components from our large stocks. Where required we can produce special orders by request to your specification.

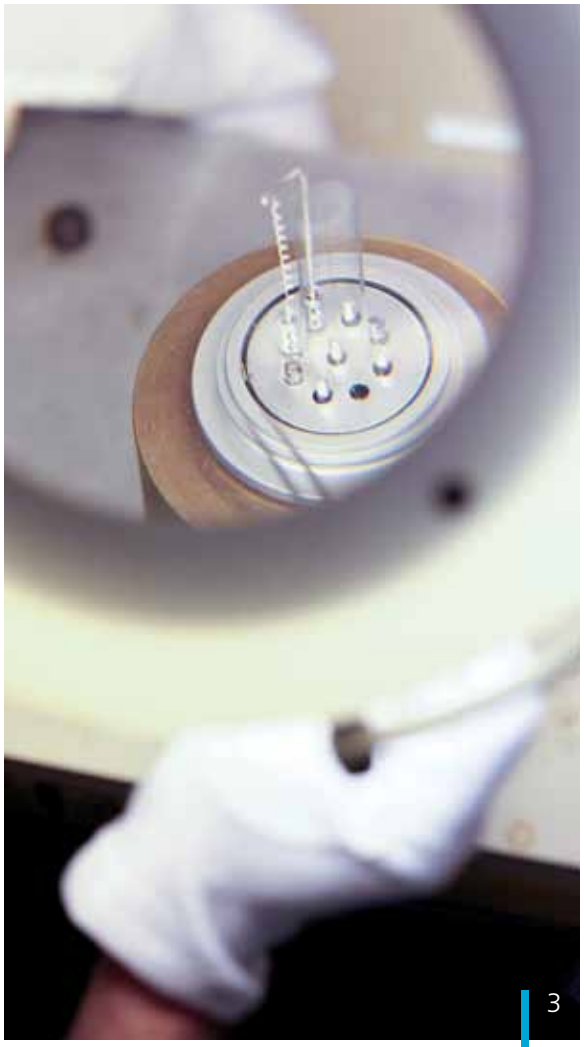
Company History

ITL was first established in the 1960's, specialising in the manufacture of special electro-optical tubes for university and science research applications.

During the 1980's and 1990's, ITL expanded rapidly with the introduction of a full range of KF, ISO and Conflat catalogue vacuum hardware flange and fitting components augmented with glass to metal seals, viewports, feedthroughs, ionisation gauge heads and the manufacture of custom designed chambers and non-standards.

Since the 1990's, ITL has developed and maintained several significant key accounts, serving the world's leading vacuum equipment suppliers and during this time received a number of achievement recognitions, including Virgin Fastrack 100 and Sussex Business awards.

ITL Vacuum Components 25,000 square foot manufacturing facility



FACILITIES

CNC Machine Shop

High output, precision CNC machining centres are the power house behind ITL's success as an OEM supplier to the world's leaders in vacuum. Economies of scale, low overheads, vast experience, efficient manufacture, materials sourcing and procurement, are all factors which make ITL a first choice supplier of vacuum hardware. Flanges and sub components are machined in 304L, 316L and 316LN Stainless Steel and Aluminium. Full traceability is available on all materials used. Sizes typically range from 30mm to 550mm diameter.

Manual Machine Shop

ITL's manual machine shop is manned by highly skilled operators with many years of experience at manufacturing high and ultra high vacuum products.
The facility manufacturers welded components such as Tees, Crosses and Elbows for standard catalogue ranges of vacuum hardware and materials worked are typically 304L and 316L stainless steel.

Larger non-standard vessels for UHV applications and up to 2M in diameter are also manufactured. Welding, leak testing, cleaning, polishing and inspection are all utilised in order to provide a high quality, finished, packed product to ITL stores. Regular batches of standard components frequently flow through this section, but enquiries for one off non-standard assemblies are also welcomed.

Welding Facility

Welding is a critical part of vacuum component manufacture and quality of welds largely determines the ultimate performance of the vacuum system. ITL's highly skilled welders have developed TIG welding to achieve high quality and reliable, ultra high vacuum fabrications.

Certificates of conformity and leak test certificates can be provided on request. Items welded can be as varied as large batch production of standard vacuum components or the assembly of precision aligned multi-ported UHV chambers up to two metres in diameter.

Glass Shop

ITL's original business was founded on expertise in the manufacture of glass to metal seals. Today ITL manufactures glass encapsulated ionisation gauge heads, viewports, glass and ceramic feedthroughs. The rare glass working expertise is available as a resource to our customers.

Assembly Room

Highly skilled operatives assemble delicate, precision products in the ITL assembly department. Items manufactured in this section:

- Ionisation Gauge Heads
- Leads and Connectors
- Filaments and Filament Kits
- Special OEM parts

Leak Testing

All welded components are helium mass-spectrometer leak checked as standard procedure. Leak test certificates and certificates of conformance can be provided on request. All products follow a manufacturing routing providing traceability and record of all leak test operations.

We are able to leak test components and fabrications of all sizes, efficiently and accurately. Graphical representation of leak rates can be provided on request using ITL's Residual Gas Analyser (RGA) Spectra equipment.

Automated Cleaning

All vacuum components pass through one of ITL's two fully automated cleaning plant. These cleaning systems include ultrasonic wash and de-ionised water rinses, followed by hot air drying to eliminate all sources of contamination from internal surfaces. All products are handled and protected to ensure they are packed in a clean condition.

We will be pleased to consider customer preferred cleaning specifications, particular solutions, rinsing and drying methods. Hand polishing and electropolished finishes can be quoted on request.

Clamps, Rings and Seals

ITL provides a wide variety of gaskets, centering rings, seals and clamps for assembly of KF, ISO and CF hardware.

Flanges - CF, ISO and KF

Flanges are produced in 304L, 316L and 316LN Stainless Steel and Aluminium. Full traceability is available on all materials used. Sizes typically range from 30mm to 419mm OD, although larger specials and wire seal type flanges are manufactured to order.

The CF series flange utilises the well proven captured copper gasket sealing principle which is now almost universally used in the UHV industry. The ISO and KF ranges seal with O-rings and are used for high vacuum applications within industry and research.

PRODUCTS

Tees, Crosses and Elbows

Standard fabrications are produced in KF, ISO and CF formats in 304L and 316L stainless steel. Welding is a critical part of vacuum component manufacture and quality of welds largely determines the ultimate performance of the vacuum system. ITL's highly skilled welders have developed TIG welding to a fine art. All welded components are helium leak checked as standard procedure.

Non-standard fabrications can be manufactured to customer specifications. ITL will manufacture components directly from your drawings or data. Alternatively, we will prepare drawings for customer approval from your sketches or verbal instructions.

Glass - Viewports and Gauges

Standard zero length viewports are manufactured using kodial glass. These viewports are UHV compatible and bakeable to 350 degrees centigrade. Graded seals, adaptors and flanged tubulations are also manufactured.

Quartz, Magnesium Fluoride and special exotic material windows optimised for particular wavelength transmissions, plus anti-reflective coatings, can be quoted on request.

Flexible Hoses and Bellows

Flexible hoses and Hydroformed Bellows assemblies are manufactured and supplied in CF, ISO and KF formats. Standard flexible hoses up to one metre in length are typically used for alignment purposes and the bellows assemblies for anti-vibration applications. Standard hoses with an outer braided skin are also manufactured. Special length hoses or bellows can be manufactured to customer request or incorporated into non-standard fabrications.

Vacuum Chambers

Large capacity machining centres and handling equipment are available for the fabrication of special vacuum assemblies and chambers of up to two metres diameter. The factory is fully equipped to fabricate complete systems for high and ultra-high vacuum applications.

Precision port alignment for analysis chambers, integral cooling coils and all required components, such as electrical feedthroughs, manipulation equipment and gauges can be pre-assembled and tested. Fully pumped, tested, bench mounted chamber assemblies can be built to customer specifications.

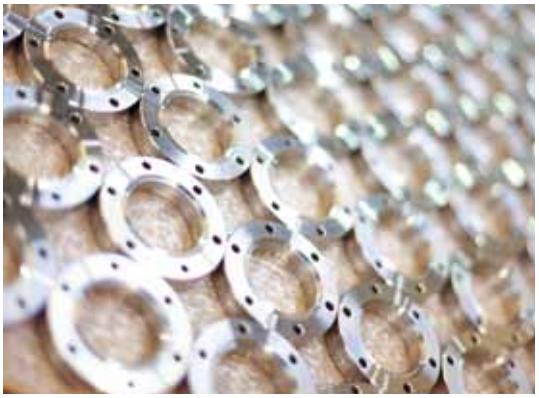
ITL will manufacture components directly from your drawings, data or can help and advise you from concept through to production. Our Technical Support Engineers are able to transform your ideas and sketches into engineering drawings. An experienced vacuum system specialist will visit your site to discuss your needs on request.

Non Standard Fabrications and Special OEM Parts

ITL will manufacture components directly from your drawings or data. Alternatively, we can work to your sketches or verbal instructions. We will manufacture your product exactly as you want it. For your prototype and small batch requirements, our traditional machine shop is available.

Enquiries for one off non standard items are welcome. Custom built items can vary to small special bore flanges to multi-ported two metre diameter vacuum vessels. Enquiries for higher quantity OEM requirements utilising ITL's machining, welding, leak testing, cleaning and glass working facilities are very welcome and will be responded to promptly and in confidence.

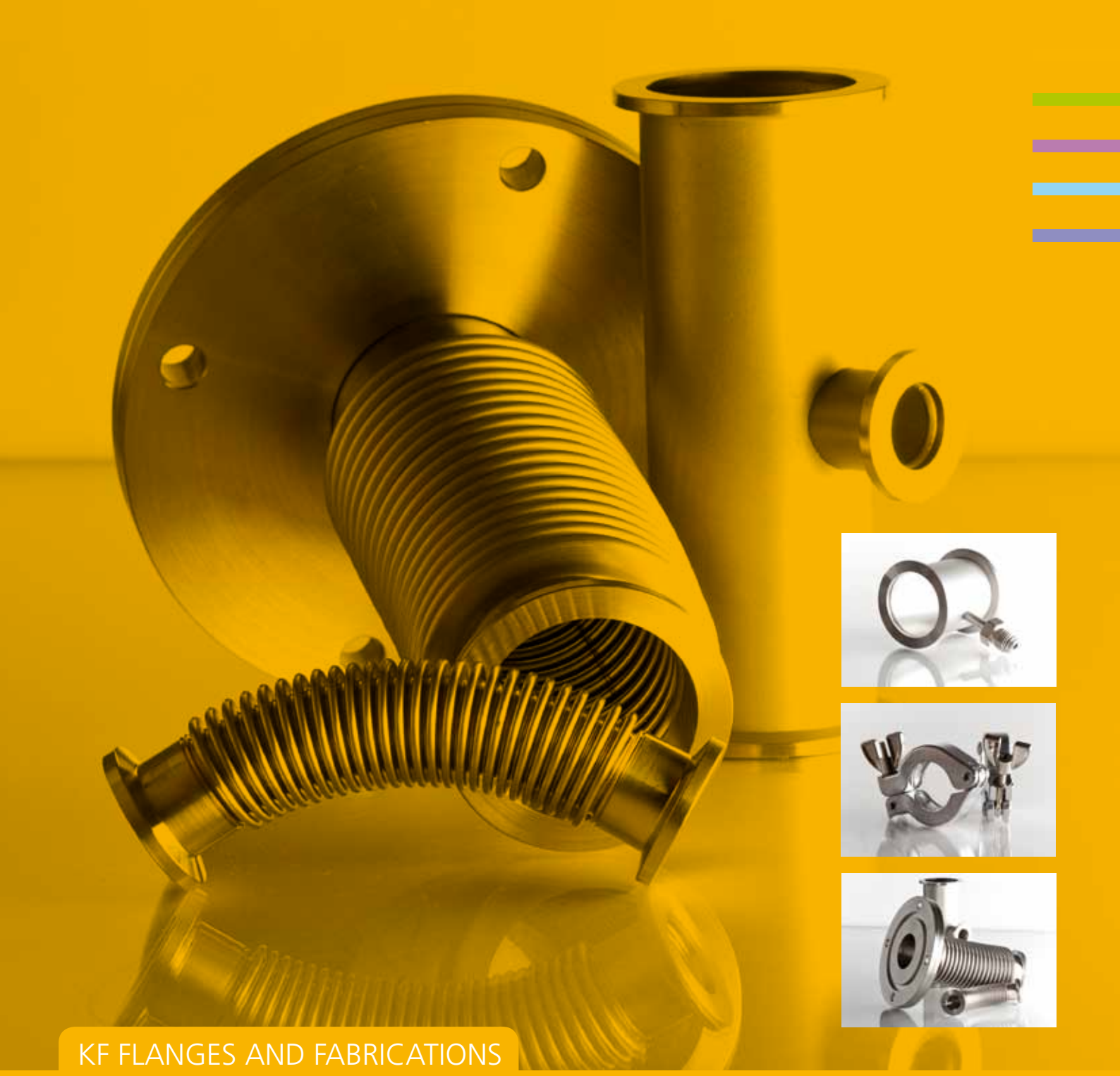
QUALITY AND SERVICE



ITL understand the needs of the major vacuum equipment supplier and users. We work in partnership with our customers to supply a complete hardware range for CF, ISO and KF products from stock and offer a comprehensive special order service for one off and limited run components and chambers. All custom components and vacuum chamber manufacturing include design service, chamber testing and processing facilities.

Products are produced to the highest quality standards yet still offered at competitive prices and are backed by the highest level of customer service. Our products are ISO 9001-2008 compliant and where required we can offer production routing and material traceability.

We are a high volume manufacturer offering, CNC manufacture, semi automated mills and large capacity turning. Due to a continual investment program we are able to offer a cost efficient low cost base combined with highly competitive bulk material procurement including 304L and 316L, 316LN, Stainless Steel and Aluminium. All this combines to ensure we remain exceptionally competitive.



KF FLANGES AND FABRICATIONS

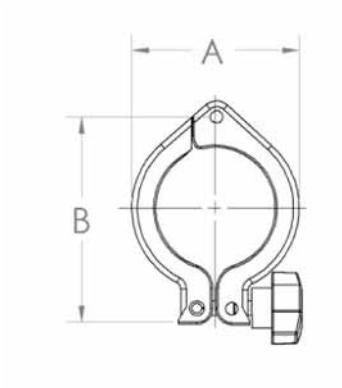
The KF range of flanges and fittings are manufactured from high quality 304L (1.4306) stainless steel*. KF flanges utilize an aluminium clamp with a single wingnut fastener allowing frequent disassembly without tools. The vacuum seal is effected by uniform application of pressure by the clamp on the 15° surface of the flange. The mating flange surfaces compress an "O"-ring (held in place by a metal centering ring) to produce a seal that can be used in vacuum applications down to 10^{-7} mbar and baked to 200°C (sustained to 150°C).

* 316L (1.4404) available on request

NW **QUICK CLAMP** - ALUMINIUM

PART NUMBER	PNEUROP	A	B
KF16C	NW16	40 (1.57)	64 (2.52)
KF25C	NW25	50 (1.97)	74 (2.91)
KF40C	NW40	65 (2.56)	89 (3.50)
KF50C	NW50	87 (3.43)	109 (4.29)

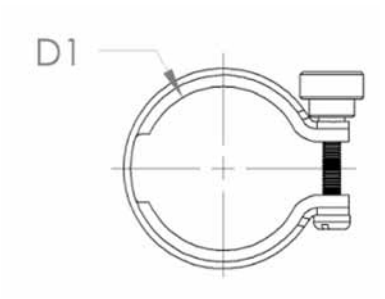
Pressure range 10 mbar to 10 bar.
Temperature range -10 to 200°C



NW **QUICK CLAMP** - STAINLESS STEEL

PART NUMBER	PNEUROP	To fit flange OD
KF16CLR	NW16	30 (1.18)
KF25CLR	NW25	40 (1.57)
KF40CLR	NW40	55 (2.17)
KF50CLR	NW50	75 (2.95)

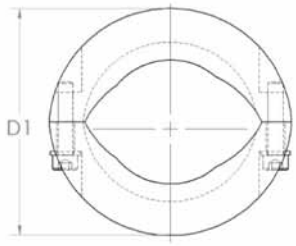
Temperature range -10 to 125°C



NW **METAL SEAL CLAMP** - 304L STAINLESS STEEL / VITON

PART NUMBER	PNEUROP	D1	ID
KF10/16MSC	NW16	54 (2.13)	22 (0.87)
KF20/25MSC	NW25	64 (2.52)	32 (1.26)
KF32/40MSC	NW40	82 (3.23)	47 (1.85)
KF50MSC	NW50	112 (4.41)	62 (2.44)

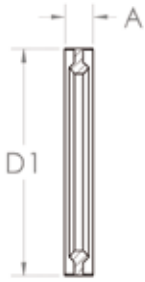
Pressure range 10^{-8} mbar to 3 bar.



NW **METAL SEAL** - ALUMINIUM

PART NUMBER	PNEUROP	D1	A
KF10/16MS	NW10/16	32 (1.26)	7 (0.28)
KF20/25MS	NW20/25	42 (1.65)	7 (0.28)
KF32/40MS	NW32/40	57 (2.24)	7 (0.28)
KF50MS	NW50	77 (3.03)	7 (0.28)

Pressure range 10^{-8} mbar to 3 bar.

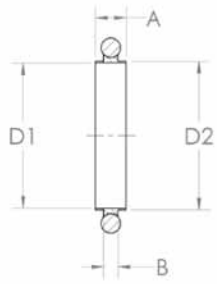


All measurements are in millimetres (inches in brackets)

NW **CENTERING RINGS** - 304L STAINLESS STEEL / VITON

PART NUMBER	PNEUROP	A	B	D1	D2
KF16SVCR	NW16	8 (0.31)	3.9 (0.15)	16 (0.63)	17 (0.67)
KF25SVCR	NW25	8 (0.31)	3.9 (0.15)	25 (0.98)	26 (1.02)
KF40SVCR	NW40	8 (0.31)	3.9 (0.15)	40 (1.57)	41 (1.61)
KF50SVCR	NW50	8 (0.31)	3.9 (0.15)	50 (1.97)	52 (2.05)

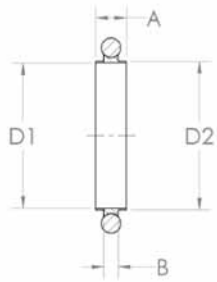
Pressure range 10^{-7} mbar to 1 bar.
Temperature range -10 to 200°C (Sustained 150°C)



NW **CENTERING RINGS** - 304L STAINLESS STEEL / NITRILE

PART NUMBER	PNEUROP	A	B	D1	D2
KF16SNCR	NW16	8 (0.31)	3.9 (0.15)	16 (0.63)	17 (0.67)
KF25SNCR	NW25	8 (0.31)	3.9 (0.15)	25 (0.98)	26 (1.02)
KF40SNCR	NW40	8 (0.31)	3.9 (0.15)	40 (1.57)	41 (1.61)
KF50SNCR	NW50	8 (0.31)	3.9 (0.15)	50 (1.97)	52 (2.05)

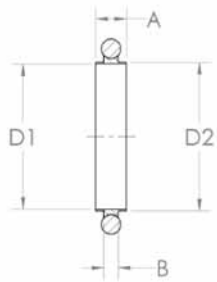
Pressure range 10^{-7} mbar to 1 bar.
Temperature range -10 to 100°C



NW **CENTERING RINGS** - ALUMINIUM / VITON

PART NUMBER	PNEUROP	A	B	D1	D2
KF16AVCR	NW16	8 (0.31)	3.9 (0.15)	16 (0.63)	17 (0.67)
KF25AVCR	NW25	8 (0.31)	3.9 (0.15)	25 (0.98)	26 (1.02)
KF40AVCR	NW40	8 (0.31)	3.9 (0.15)	40 (1.57)	41 (1.61)
KF50AVCR	NW50	8 (0.31)	3.9 (0.15)	50 (1.97)	52 (2.05)

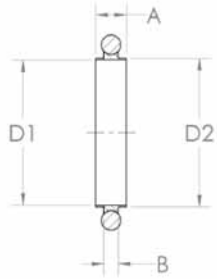
Pressure range 10^{-7} mbar to 1 bar.
Temperature range -10 to 200°C (Sustained 150°C)



NW **CENTERING RINGS** - ALUMINIUM / NITRILE

PART NUMBER	PNEUROP	A	B	D1	D2
KF16ANCR	NW16	8 (0.31)	3.9 (0.15)	16 (0.63)	17 (0.67)
KF25ANCR	NW25	8 (0.31)	3.9 (0.15)	25 (0.98)	26 (1.02)
KF40ANCR	NW40	8 (0.31)	3.9 (0.15)	40 (1.57)	41 (1.61)
KF50ANCR	NW50	8 (0.31)	3.9 (0.15)	50 (1.97)	52 (2.05)

Pressure range 10^{-7} mbar to 1 bar.
Temperature range -10 to 100°C

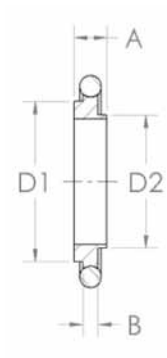


All measurements are in millimetres (inches in brackets)

NW **ADAPTER CENTERING RING** - 304L STAINLESS STEEL / VITON

PART NUMBER	PNEUROP	A	B	D1	D2
KF10/16SVRCR	NW10/16	8 (0.31)	3.9 (0.15)	17 (0.67)	12 (0.47)
KF20/25SVRCR	NW20/25	8 (0.31)	3.9 (0.15)	26 (1.02)	22 (0.87)
KF32/40SVRCR	NW32/40	8 (0.31)	3.9 (0.15)	41 (1.61)	34 (1.34)

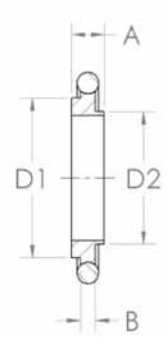
Pressure range 10^{-7} mbar to 1 bar.
Temperature range -10 to 200°C (Sustained 150°C)
Also available in aluminium.



NW **ADAPTER CENTERING RING** - 304L STAINLESS STEEL / NITRILE

PART NUMBER	PNEUROP	A	B	D1	D2
KF10/16SNRCR	NW10/16	8 (0.31)	3.9 (0.15)	17 (0.67)	12 (0.47)
KF20/25SNRCR	NW20/25	8 (0.31)	3.9 (0.15)	26 (1.02)	22 (0.87)
KF32/40SNRCR	NW32/40	8 (0.31)	3.9 (0.15)	41 (1.61)	34 (1.34)

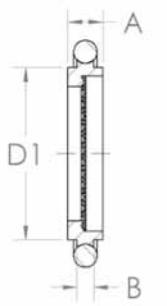
Pressure range 10^{-7} mbar to 1 bar.
Temperature range -10 to 100°C
Also available in aluminium.



NW **CENTERING RING WITH MESH SCREEN** - 304L ST. STEEL / VITON

PART NUMBER	PNEUROP	A	B	D1
KF16MCRV	NW16	8 (0.31)	3.9 (0.15)	17 (0.67)
KF25MCRV	NW25	8 (0.31)	3.9 (0.15)	26 (1.02)
KF40MCRV	NW40	8 (0.31)	3.9 (0.15)	41 (1.61)
KF50MCRV	NW50	8 (0.31)	3.9 (0.15)	52 (2.05)

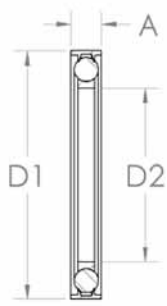
Stainless steel centering ring with 72 mesh screen
(0.5 x 0.5 x 1.0mm).
Pressure range 10^{-7} mbar to 1 bar.
Temperature range -10 to 200°C (Sustained 150°C).



NW **TRAPPED CENTERING RINGS** - 304L STAINLESS STEEL / VITON

PART NUMBER	PNEUROP	A	D1	D2
KF16TCRV	NW16	7 (0.28)	31.5 (1.24)	16 (0.63)
KF25TCRV	NW25	7 (0.28)	41.5 (1.63)	25 (0.98)
KF40TCRV	NW40	7 (0.28)	56.5 (2.22)	40 (1.57)
KF50TCRV	NW50	7 (0.28)	77.5 (3.05)	50 (1.97)

Aluminium outer, stainless steel inner.
Pressure range 10^{-7} mbar to 10 bar.
Temperature range -10 to 200°C (Sustained 150°C).



All measurements are in millimetres (inches in brackets)

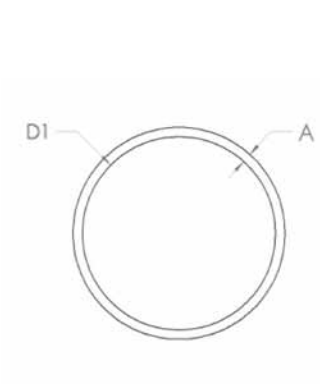
NW **O-RING** - VITON / NITRILE

PART NUMBER VITON	PNEUROP	A	D1
KF16VR	NW16	5 (0.20)	18 (0.71)
KF25VR	NW25	5 (0.20)	28 (1.10)
KF40VR	NW40	5 (0.20)	42 (1.65)
KF50VR	NW50	5 (0.20)	55 (2.17)

Viton O-ring
Pressure range 10^{-7} mbar to 1 bar absolute.

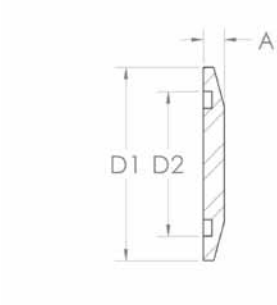
PART NUMBER NITRILE
KF16NR
KF25NR
KF40NR
KF50NR

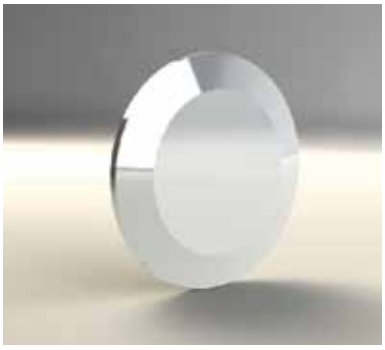
Nitrile O-ring



NW **BLANK FLANGE** - 304L STAINLESS STEEL

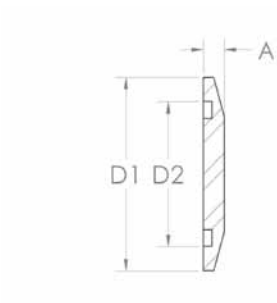
PART NUMBER	PNEUROP	A	D1	D2
KF16BS	NW16	6 (0.24)	30 (1.18)	17.2 (0.68)
KF25BS	NW25	6 (0.24)	40 (1.57)	26.2 (1.03)
KF40BS	NW40	6 (0.24)	55 (2.17)	41.2 (1.62)
KF50BS	NW50	6 (0.24)	75 (2.95)	52.2 (2.06)

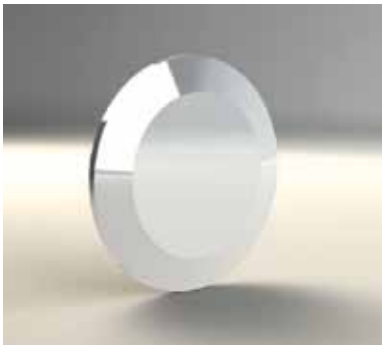




NW **BLANK FLANGE** - ALUMINIUM

PART NUMBER	PNEUROP	A	D1	D2
KF16BA	NW16	6 (0.24)	30 (1.18)	17.2 (0.68)
KF25BA	NW25	6 (0.24)	40 (1.57)	26.2 (1.03)
KF40BA	NW40	6 (0.24)	55 (2.17)	41.2 (1.62)
KF50BA	NW50	6 (0.24)	75 (2.95)	52.2 (2.06)

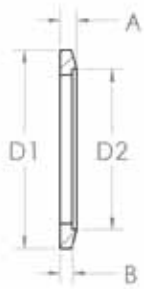




NW **BORED FLANGE** - 304L STAINLESS STEEL

PART NUMBER	PNEUROP	A	B	D1	D2
KF16B16	NW16	4.3 (0.17)	3.3 (0.13)	30 (1.18)	20.0 (0.79)
KF16B19	NW16	4.3 (0.17)	3.3 (0.13)	30 (1.18)	19.05 (0.75)
KF25B24	NW25	4.6 (0.18)	3.5 (0.14)	40 (1.57)	28.0 (1.10)
KF25B25	NW25	4.6 (0.18)	3.5 (0.14)	40 (1.57)	25.4 (1.00)
KF40B38	NW40	4.4 (0.17)	3.3 (0.13)	55 (2.17)	38.1 (1.50)
KF40B41	NW40	4.4 (0.17)	3.3 (0.13)	55 (2.17)	44.5 (1.75)
KF50B50	NW50	5.4 (0.21)	4.4 (0.17)	75 (2.95)	50.8 (2.00)
KF50B51	NW50	5.4 (0.21)	4.4 (0.17)	75 (2.95)	57.0 (2.24)

Special bores available on request.



All measurements are in millimetres (inches in brackets)

NW FLANGE **CAPS**

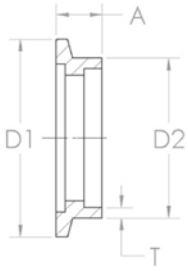
PART NUMBER	PNEUROP	PACK SIZE	A	D1
KF16CAP	NW16	10	11 (0.43)	30 (1.18)
KF25CAP	NW25	10	11 (0.43)	40 (1.57)
KF40CAP	NW40	10	11 (0.43)	55 (2.17)
KF50CAP	NW50	10	11 (0.43)	75 (2.95)

NW **BULKHEAD CLAMP** - ALUMINIUM

PART NUMBER	PNEUROP	A	D1	D2
BHC16	NW16	9.2 (0.36)	50.8 (2.00)	30 (1.18)
BHC25	NW25	9.8 (0.39)	60.3 (2.37)	40 (1.57)
BHC40	NW40	9.3 (0.37)	74.6 (2.94)	55 (2.17)
BHC50	NW50	10.3 (0.41)	95.2 (3.75)	75 (2.95)

NW **SOCKET WELD FLANGE** - 304L STAINLESS STEEL

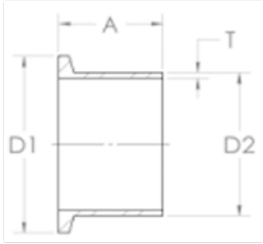
PART NUMBER	PNEUROP	A	D1	D2	T
KF16W11	NW16	12.7 (0.50)	30 (1.18)	15.5 (0.61)	1.25 (0.05)
KF16W	NW16	12.7 (0.50)	30 (1.18)	22.1 (0.87)	1.40 (0.06)
KF25W	NW25	12.7 (0.50)	40 (1.57)	28.6 (1.13)	1.35 (0.05)
KF40W	NW40	12.7 (0.50)	55 (2.17)	44.5 (1.75)	2.95 (0.12)
KF50W	NW50	12.7 (0.50)	75 (2.95)	57.2 (2.25)	2.95 (0.12)

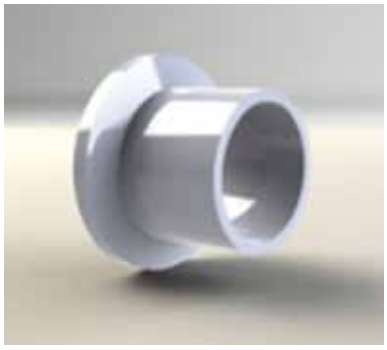


NW **TUBULATION SHORT WELD FLANGE** - 304L STAINLESS STEEL

PART NUMBER	PNEUROP	A	D1	D2	T
TU16KS	NW16	30.0 (1.18)	30 (1.18)	20.0 (0.79)	2.0 (0.08)
TU25KS	NW25	30.0 (1.18)	40 (1.57)	28.0 (1.10)	2.0 (0.08)
TU40KS	NW40	30.0 (1.18)	55 (2.17)	44.5 (1.75)	1.6 (0.06)
TU50KS	NW50	30.0 (1.18)	75 (2.95)	57.0 (2.24)	3.0 (0.12)
TU16KSUS	NW16	12.7 (0.50)	30 (1.18)	19.1 (0.75)	1.7 (0.07)
TU25KSUS	NW25	12.7 (0.50)	40 (1.57)	25.4 (1.00)	1.7 (0.07)
TU40KSUS	NW40	19.0 (0.75)	55 (2.17)	38.1 (1.50)	1.7 (0.07)
TU50KSUS	NW50	19.0 (0.75)	75 (2.95)	50.8 (2.00)	1.7 (0.07)

Special lengths, diameters and imperial tube available on request.



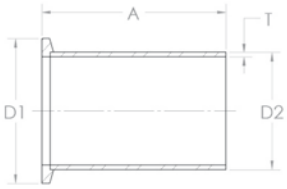


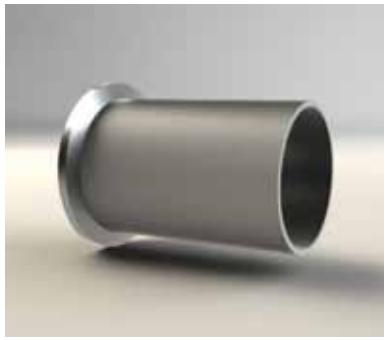
All measurements are in millimetres (inches in brackets)

NW **TUBULATION LONG WELD FLANGE** - 304L STAINLESS STEEL

PART NUMBER	PNEUROP	A	D1	D2	T
TU16KL	NW16	70 (2.76)	30 (1.18)	20.0 (0.79)	2.0 (0.08)
TU25KL	NW25	70 (2.76)	40 (1.57)	28.0 (1.10)	2.0 (0.08)
TU40KL	NW40	70 (2.76)	55 (2.17)	44.5 (1.75)	2.0 (0.08)
TU50KL	NW50	70 (2.76)	75 (2.95)	57.0 (2.24)	3.0 (0.12)
TU16KLUS	NW16	40 (1.57)	30 (1.18)	19.1 (0.75)	1.7 (0.07)
TU25KLUS	NW25	40 (1.57)	40 (1.57)	25.4 (1.00)	1.7 (0.07)
TU40KLUS	NW40	40 (1.57)	55 (2.17)	38.1 (1.50)	1.7 (0.07)
TU50KLUS	NW50	40 (1.57)	75 (2.95)	50.8 (2.00)	1.7 (0.07)

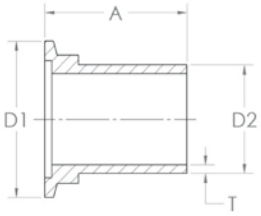
Special lengths, diameters and imperial tube available on request.

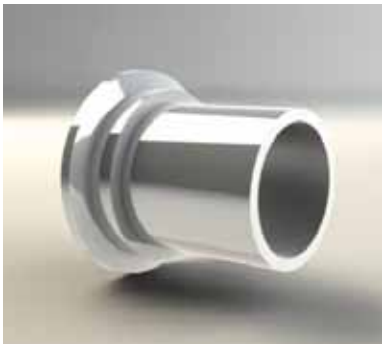




NW **HOSE ADAPTER** - 304L STAINLESS STEEL

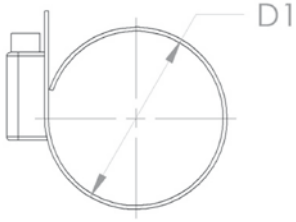
PART NUMBER	PNEUROP	A	D1	D2	T
KF16TUH12	NW16	32.0 (1.26)	30 (1.18)	12.7 (0.50)	1.70 (0.07)
KF16TUH	NW16	32.0 (1.26)	30 (1.18)	19.1 (0.75)	1.55 (0.06)
KF25TUH	NW25	38.1 (1.50)	40 (1.57)	25.4 (1.00)	1.70 (0.07)
KF40TUH	NW40	50.0 (1.97)	55 (2.17)	38.1 (1.50)	1.70 (0.07)
KF50TUH	NW50	55.0 (2.17)	75 (2.95)	50.8 (2.00)	1.70 (0.07)





NW **HOSE CLAMPS**

PART NUMBER	PNEUROP	D1
KF16HC	NW10/16	25 (0.98)
KF25HC	NW25	36 (1.42)
KF40HC	NW40	50 (1.97)
KF50HC	NW50	60 (2.36)



NW **WIRE REINFORCED HOSE** - PVC

PART NUMBER	PNEUROP	A	D1 NOMINAL BORE
PVC16	NW16	1000 (39.37)	19.05 (0.75)
PVC25	NW25	1000 (39.37)	25.40 (1.00)
PVC40	NW40	1000 (39.37)	38.10 (1.50)
PVC50	NW50	1000 (39.37)	50.80 (2.00)

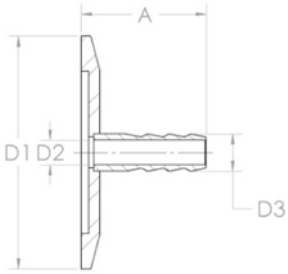
All measurements are in millimetres (inches in brackets)

NW **HOSE CONNECTORS** - PVC / STAINLESS STEEL

PART NUMBER	PNEUROP	A	D1
KF16PVC25	NW16	250 (9.84)	30 (1.18)
KF16PVC50	NW16	500 (19.69)	30 (1.18)
KF16PVC75	NW16	750 (29.53)	30 (1.18)
KF16PVC100	NW16	1000 (39.37)	30 (1.18)
KF25PVC25	NW25	250 (9.84)	40 (1.57)
KF25PVC50	NW25	500 (19.69)	40 (1.57)
KF25PVC75	NW25	750 (29.53)	40 (1.57)
KF25PVC100	NW25	1000 (39.37)	40 (1.57)
KF40PVC25	NW40	250 (9.84)	55 (2.17)
KF40PVC50	NW40	500 (19.69)	55 (2.17)
KF40PVC75	NW40	750 (29.53)	55 (2.17)
KF40PVC100	NW40	1000 (39.37)	55 (2.17)
KF50PVC25	NW50	250 (9.84)	75 (2.95)
KF50PVC50	NW50	500 (19.69)	75 (2.95)
KF50PVC75	NW50	750 (29.53)	75 (2.95)
KF50PVC100	NW50	1000 (39.37)	75 (2.95)

NW **HOSE NOZZLE CONNECTOR** - 304L STAINLESS STEEL

PART NUMBER	PNEUROP	A	D1	D2	D3
KF16HNS	NW16	40 (1.57)	30 (1.18)	7 (0.28)	12 (0.47)
KF25HNS	NW16	40 (1.57)	40 (1.57)	7 (0.28)	12 (0.47)
KF40HNS	NW40	40 (1.57)	55 (2.17)	7 (0.28)	12 (0.47)
KF50HNS	NW50	40 (1.57)	75 (2.95)	7 (0.28)	12 (0.47)



NW **STRAIGHT CONNECTOR** - 304L STAINLESS STEEL

PART NUMBER	PNEUROP	A	D1	D2	T
SC16K	NW16	80 (3.15)	30 (1.18)	20.0 (0.79)	2.0 (0.08)
SC25K	NW25	100 (3.94)	40 (1.57)	28.0 (1.10)	2.0 (0.08)
SC40K	NW40	130 (5.12)	55 (2.17)	44.5 (1.75)	1.6 (0.06)
SC50K140	NW50	140 (5.51)	75 (2.95)	57.0 (2.24)	3.0 (0.12)

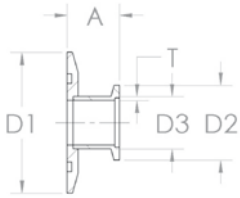
Special lengths, diameters and imperial tube available on request.

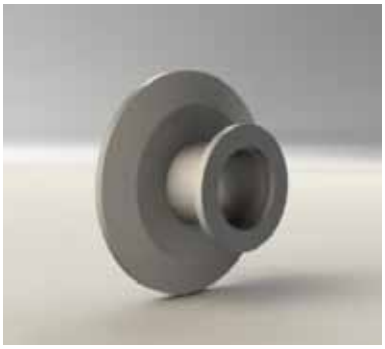
All measurements are in millimetres (inches in brackets)

NW **REDUCER ADAPTOR** - 304L STAINLESS STEEL

PART NUMBER	PNEUROP	A	D1	D2	D3	T
KF25R16	NW25/16	28 (1.1)	40 (1.57)	30 (1.18)	20.0 (0.79)	2.0 (0.08)
KF40R16	NW40/16	28 (1.1)	55 (2.17)	30 (1.18)	20.0 (0.79)	2.0 (0.08)
KF50R16	NW50/16	28 (1.1)	75 (2.95)	30 (1.18)	20.0 (0.79)	2.0 (0.08)
KF40R25	NW40/25	28 (1.1)	55 (2.17)	40 (1.57)	28.0 (1.10)	2.0 (0.08)
KF50R25	NW50/25	28 (1.1)	75 (2.95)	40 (1.57)	28.0 (1.10)	2.0 (0.08)
KF50R40	NW50/40	28 (1.1)	75 (2.95)	55 (2.17)	44.5 (1.75)	2.0 (0.08)

Special lengths, diameters and imperial tube available on request.

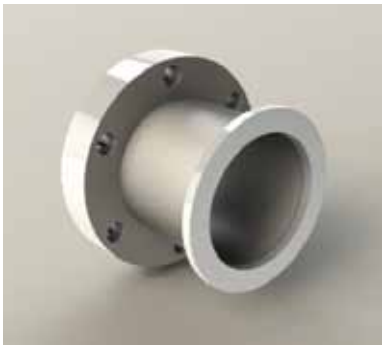


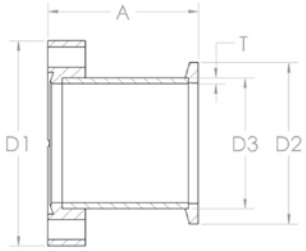


NW TO CF **REDUCER ADAPTOR** - 304L STAINLESS STEEL

PART NUMBER	PNEUROP	A	D1	D2	D3	T
KA1616	CF16/NW16	36 (1.42)	34 (1.34)	30 (1.18)	20.0 (0.79)	2 (0.08)
KA3516	CF35/NW16	36 (1.42)	70 (2.76)	30 (1.18)	20.0 (0.79)	2 (0.08)
KA3525	CF35/NW25	36 (1.42)	70 (2.76)	40 (1.57)	28.0 (1.10)	2 (0.08)
KA3540	CF35/NW40	50 (1.97)	70 (2.76)	55 (2.17)	44.5 (1.75)	2 (0.08)
KA6325	CF63/NW25	50 (1.97)	114 (4.49)	40 (1.57)	28.0 (1.10)	2 (0.08)
KA6340	CF63/NW40	50 (1.97)	114 (4.49)	55 (2.17)	44.5 (1.75)	2 (0.08)
KA6350	CF63/NW50	50 (1.97)	114 (4.49)	75 (2.95)	57.0 (2.24)	3 (0.12)
KA1025	CF100/NW25	50 (1.97)	152 (5.98)	40 (1.57)	28.0 (1.10)	2 (0.08)
KA1040	CF100/NW40	50 (1.97)	152 (5.98)	55 (2.17)	44.5 (1.75)	2 (0.08)
KA1050	CF100/NW50	50 (1.97)	152 (5.98)	75 (2.95)	57.0 (2.24)	3 (0.12)
KA1525	CF150/NW25	70 (2.76)	203 (7.99)	40 (1.57)	28.0 (1.10)	2 (0.08)
KA1540	CF150/NW40	70 (2.76)	203 (7.99)	55 (2.17)	44.5 (1.75)	2 (0.08)
KA1550	CF150/NW50	70 (2.76)	203 (7.99)	75 (2.95)	57.0 (2.24)	3 (0.12)

Special lengths and imperial tube available on request.

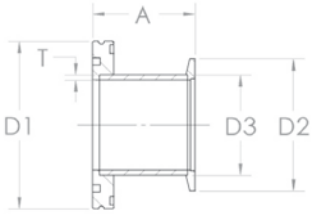




ISO TO NW **ADAPTOR** - 304L STAINLESS STEEL.

PART NUMBER	PNEUROP	A	D1	D2	D3	T
SK6325	ISO63/NW25	50 (1.97)	95 (3.74)	40 (1.57)	28.0 (1.10)	2 (0.08)
SK6340	ISO63/NW40	50 (1.97)	95 (3.74)	55 (2.17)	44.5 (1.75)	2 (0.08)
SK6350	ISO63/NW50	50 (1.97)	95 (3.74)	75 (2.95)	57.0 (2.24)	3 (0.12)
SK1025	ISO100/NW25	50 (1.97)	130 (5.12)	40 (1.57)	28.0 (1.10)	2 (0.08)
SK1040	ISO100/NW40	50 (1.97)	130 (5.12)	55 (2.17)	44.5 (1.75)	2 (0.08)
SK1050	ISO100/NW50	50 (1.97)	130 (5.12)	75 (2.95)	57.0 (2.24)	3 (0.12)

Special lengths and imperial tube available on request.

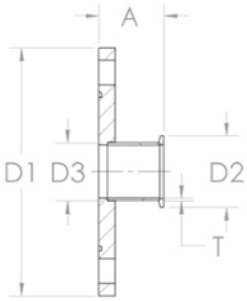


All measurements are in millimetres (inches in brackets)

ASA TO NW **ADAPTOR** - 304L STAINLESS STEEL

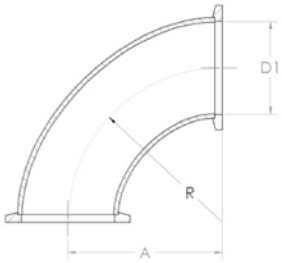
PART NUMBER	PNEUROP	A	D1	D2	D3	T
KASA4038G	ASA1.5”/NW40	46 (1.81)	127 (5.00)	55 (2.17)	44.5 (1.75)	2 (0.08)
KASA4050G	ASA2.0”/NW40	46 (1.81)	152 (5.98)	55 (2.17)	44.5 (1.75)	2 (0.08)
KASA4075G	ASA3.0”/NW40	46 (1.81)	191 (7.52)	55 (2.17)	44.5 (1.75)	2 (0.08)
KASA5038G	ASA1.5”/NW50	46 (1.81)	127 (5.00)	75 (2.95)	57.0 (2.24)	3 (0.12)
KASA5050G	ASA2.0”/NW50	46 (1.81)	152 (5.98)	75 (2.95)	57.0 (2.24)	3 (0.12)
KASA5075G	ASA3.0”/NW50	46 (1.81)	191 (7.52)	75 (2.95)	57.0 (2.24)	3 (0.12)

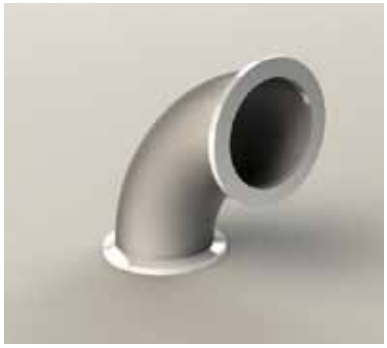
With O-ring groove



NW **90 DEGREE RADIUS ELBOW** - 304L STAINLESS STEEL

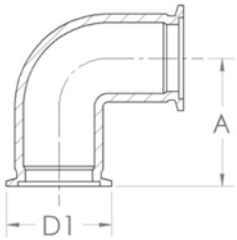
PART NUMBER	PNEUROP	A	D1	R
EL16K	NW16	40 (1.57)	20.0 (0.79)	27 (1.06)
EL25K	NW25	50 (1.97)	28.0 (1.10)	37 (1.46)
EL40K	NW40	65 (2.56)	44.5 (1.75)	60 (2.36)
EL50K	NW50	70 (2.76)	57.0 (2.24)	65 (2.56)





NW **90 DEGREE RADIUS ELBOW** - ALUMINIUM

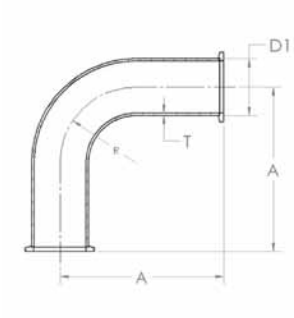
PART NUMBER	PNEUROP	A	D1
EL16KA	NW16	40 (1.57)	30 (1.18)
EL25KA	NW25	50 (1.97)	40 (1.57)
EL40KA	NW40	65 (2.56)	55 (2.17)



All measurements are in millimetres (inches in brackets)

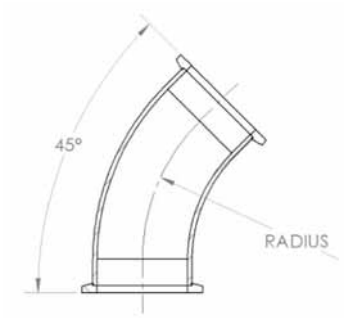
NW **LONG RADIUS ELBOW** - 304L STAINLESS STEEL

PART NUMBER	PNEUROP	A	D1	R	T
LREL40K	NW40	130 (5.12)	44.5 (1.75)	60 (2.36)	2 (0.08)
LREL50K	NW50	140 (5.51)	57.0 (2.24)	126 (4.96)	3 (0.12)



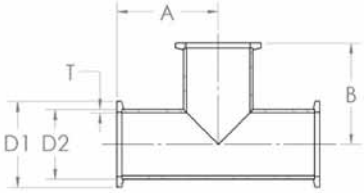
NW **45 DEGREE RADIUS ELBOW** - 304L STAINLESS STEEL

PART NUMBER	PNEUROP	R
EL416KF	NW16	40 (1.57)
EL425KF	NW25	45 (1.77)
EL440KF	NW40	51 (2.01)
EL450KF	NW50	75 (2.95)



NW **TEE** - 304L STAINLESS STEEL

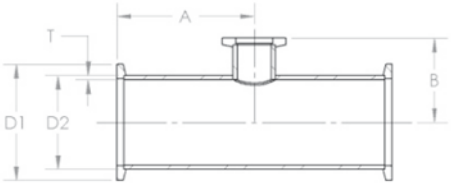
PART NUMBER	PNEUROP	A	B	D1	D2	T
TE16K	NW16	40 (1.57)	40 (1.57)	30 (1.18)	20.0 (0.79)	2 (0.08)
TE25K	NW25	50 (1.97)	50 (1.97)	40 (1.57)	28.0 (1.1)	2 (0.08)
TE40K	NW40	65 (2.56)	65 (2.56)	55 (2.17)	44.5 (1.75)	2 (0.08)
TE50K	NW50	70 (2.76)	70 (2.76)	75 (2.95)	57.0 (2.24)	3 (0.12)



All measurements are in millimetres (inches in brackets)

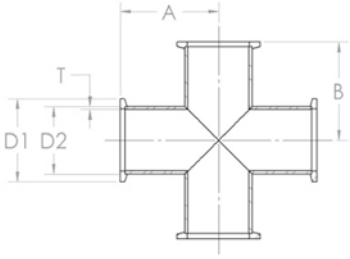
NW **UNEQUAL TEE** - 304L STAINLESS STEEL

PART NUMBER	PNEUROP	A	B	D1	D2	T
UTE2516K	NW25/16	50 (1.97)	40 (1.57)	40 (1.57)	28.0 (1.10)	2 (0.08)
UTE4016K	NW40/16	65 (2.56)	40 (1.57)	55 (2.17)	44.5 (1.75)	2 (0.08)
UTE4025K	NW40/25	65 (2.56)	50 (1.97)	55 (2.17)	44.5 (1.75)	2 (0.08)
UTE5016K	NW50/16	70 (2.76)	50 (1.97)	75 (2.95)	57.0 (2.24)	3 (0.12)
UTE5025K	NW50/25	70 (2.76)	65 (2.56)	75 (2.95)	57.0 (2.24)	3 (0.12)
UTE5040K	NW50/40	70 (2.76)	65 (2.56)	75 (2.95)	57.0 (2.24)	3 (0.12)



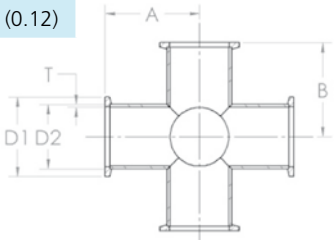
NW **4-WAY CROSS** - 304L STAINLESS STEEL

PART NUMBER	PNEUROP	A	B	D1	D2	T
X16K	NW16	40 (1.57)	40 (1.57)	30 (1.18)	20.0 (0.79)	2 (0.08)
X25K	NW25	50 (1.97)	50 (1.97)	40 (1.57)	28.0 (1.10)	2 (0.08)
X40K	NW40	65 (2.56)	65 (2.56)	55 (2.17)	44.5 (1.75)	2 (0.08)
X50K	NW50	70 (2.76)	70 (2.76)	75 (2.95)	57.0 (2.24)	3 (0.12)



NW **5-WAY CROSS** - 304L STAINLESS STEEL

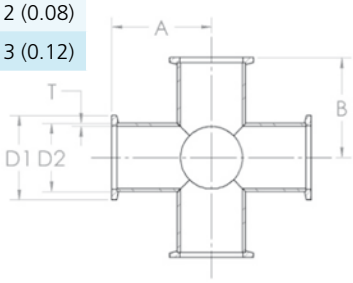
PART NUMBER	PNEUROP	A	B	D1	D2	T
FWX16K	NW16	40 (1.57)	40 (1.57)	30 (1.18)	20.0 (0.79)	2 (0.08)
FWX25K	NW25	50 (1.97)	50 (1.97)	40 (1.57)	28.0 (1.10)	2 (0.08)
FWX40K	NW40	65 (2.56)	65 (2.56)	55 (2.17)	44.5 (1.75)	2 (0.08)
FWX50K	NW50	70 (2.76)	70 (2.76)	75 (2.95)	57.0 (2.24)	3 (0.12)



All measurements are in millimetres (inches in brackets)

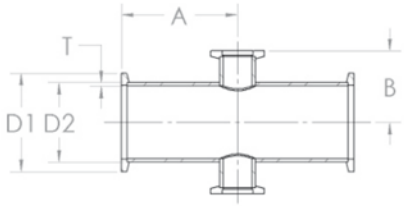
NW **6-WAY CROSS** - 304L STAINLESS STEEL

PART NUMBER	PNEUROP	A	B	D1	D2	T
XX16K	NW16	40 (1.57)	40 (1.57)	30 (1.18)	20.0 (0.79)	2 (0.08)
XX25K	NW25	50 (1.97)	50 (1.97)	40 (1.57)	28.0 (1.10)	2 (0.08)
XX40K	NW40	65 (2.56)	65 (2.56)	55 (2.17)	44.5 (1.75)	2 (0.08)
XX50K	NW50	70 (2.76)	70 (2.76)	75 (2.95)	57.0 (2.24)	3 (0.12)



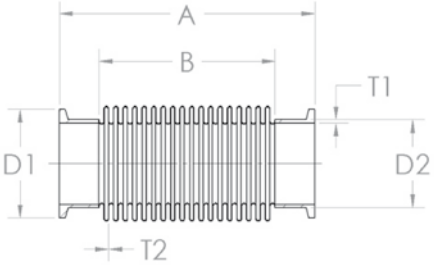
NW **4-WAY REDUCING CROSS FIXED** - 304L STAINLESS STEEL

PART NUMBER	PNEUROP	A	B	D1	D2	T
X25K16	NW25/16	50 (1.97)	40 (1.57)	40 (1.57)	28.0 (1.10)	2 (0.08)
X40K16	NW40/16	65 (2.56)	40 (1.57)	55 (2.17)	44.5 (1.75)	2 (0.08)
X40K25	NW40/25	65 (2.56)	50 (1.97)	55 (2.17)	44.5 (1.75)	2 (0.08)
X50K16	NW50/16	70 (2.76)	50 (1.97)	75 (2.95)	57.0 (2.24)	3 (0.12)
X50K25	NW50/25	70 (2.76)	50 (1.97)	75 (2.95)	57.0 (2.24)	3 (0.12)
X50K40	NW50/40	70 (2.76)	65 (2.56)	75 (2.95)	57.0 (2.24)	3 (0.12)



NW **FLEXIBLE BELLOWS** - STAINLESS STEEL

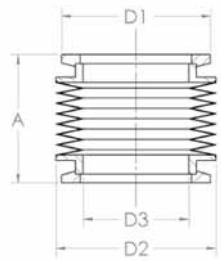
PART NUMBER	PNEUROP	A	B	D1	D2	T1	T2
KF16FXB	NW16	121 (4.76)	88.0 (3.46)	30 (1.18)	20.0 (0.79)	2.0 (0.08)	0.10 (0.01)
KF25FXB	NW25	121 (4.76)	85.7 (3.37)	40 (1.57)	27.0 (1.06)	1.5 (0.06)	0.15 (0.01)
KF40FXB	NW40	121 (4.76)	83.0 (3.27)	55 (2.17)	44.5 (1.75)	1.6 (0.06)	0.20 (0.01)
KF50FXB	NW50	110 (4.33)	76.0 (2.99)	75 (2.95)	57.0 (2.24)	3.0 (0.12)	0.25 (0.01)



All measurements are in millimetres (inches in brackets)

NW **EDGE WELDED BELLOWS** - STAINLESS STEEL

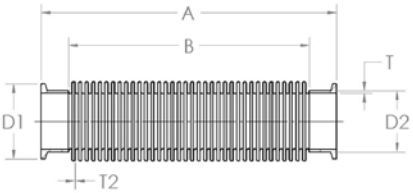
PART NUMBER	PNEUROP	A	D1	D2	D3
KF16EWB	NW16	55 (2.17)	30 (1.18)	31.5 (1.24)	16.0 (0.63)
KF25EWB	NW25	55 (2.17)	40 (1.57)	46.0 (1.81)	24.0 (0.94)
KF40EWB	NW40	55 (2.17)	55 (2.17)	59.0 (2.32)	40.4 (1.59)
KF50EWB	NW50	55 (2.17)	75 (2.95)	76.0 (2.99)	51.0 (2.01)



NW **FLEXIBLE ANNEALED HOSE** - STAINLESS STEEL

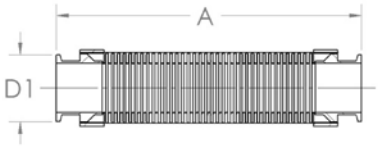
PART NUMBER	PNEUROP	A	B	D1	D2	T	T2
FX16K25	NW16	250 (9.84)	220 (8.66)	30 (1.18)	20.0 (0.79)	2.0 (0.08)	0.23 (0.01)
FX16K50	NW16	500 (19.69)	470 (18.5)	30 (1.18)	20.0 (0.79)	2.0 (0.08)	0.23 (0.01)
FX16K75	NW16	750 (29.53)	720 (28.35)	30 (1.18)	20.0 (0.79)	2.0 (0.08)	0.23 (0.01)
FX16K100	NW16	1000 (39.37)	970 (38.19)	30 (1.18)	20.0 (0.79)	2.0 (0.08)	0.23 (0.01)
FX25K25	NW25	250 (9.84)	220 (8.66)	40 (1.57)	27.0 (1.06)	1.5 (0.06)	0.23 (0.01)
FX25K50	NW25	500 (19.69)	470 (18.5)	40 (1.57)	27.0 (1.06)	1.5 (0.06)	0.23 (0.01)
FX25K75	NW25	750 (29.53)	720 (28.35)	40 (1.57)	27.0 (1.06)	1.5 (0.06)	0.23 (0.01)
FX25K100	NW25	1000 (39.37)	970 (38.19)	40 (1.57)	27.0 (1.06)	1.5 (0.06)	0.23 (0.01)
FX40K25	NW40	250 (9.84)	220 (8.66)	55 (2.17)	44.5 (1.75)	1.6 (0.06)	0.23 (0.01)
FX40K50	NW40	500 (19.69)	470 (18.5)	55 (2.17)	44.5 (1.75)	1.6 (0.06)	0.23 (0.01)
FX40K75	NW40	750 (29.53)	720 (28.35)	55 (2.17)	44.5 (1.75)	1.6 (0.06)	0.23 (0.01)
FX40K100	NW40	1000 (39.37)	970 (38.19)	55 (2.17)	44.5 (1.75)	1.6 (0.06)	0.23 (0.01)
FX50K25	NW50	250 (9.84)	220 (8.66)	75 (2.95)	57.0 (2.24)	3.0 (0.12)	0.23 (0.01)
FX50K50	NW50	500 (19.69)	470 (18.5)	75 (2.95)	57.0 (2.24)	3.0 (0.12)	0.23 (0.01)
FX50K75	NW50	750 (29.53)	720 (28.35)	75 (2.95)	57.0 (2.24)	3.0 (0.12)	0.23 (0.01)
FX50K100	NW50	1000 (39.37)	970 (38.19)	75 (2.95)	57.0 (2.24)	3.0 (0.12)	0.23 (0.01)

Custom lengths available on request, standard hoses are annealed, un-annealed can be supplied if required



NW **BRAIDED FLEXIBLE HOSE** - STAINLESS STEEL

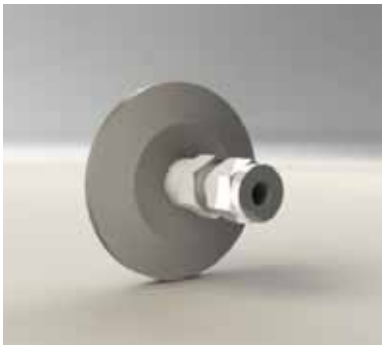
PART NUMBER	PNEUROP	A	D1
BFX25K13	NW25	135 (5.31)	40 (1.57)
BFX25K25	NW25	250 (9.84)	40 (1.57)
BFX25K50	NW25	500 (19.69)	40 (1.57)
BFX25K100	NW25	1000 (39.37)	40 (1.57)
BFX40K13	NW40	135 (5.31)	55 (2.17)
BFX40K25	NW40	250 (9.84)	55 (2.17)
BFX40K50	NW40	500 (19.69)	55 (2.17)
BFX40K100	NW40	1000 (39.37)	55 (2.17)
BFX50K13	NW50	135 (5.31)	75 (2.95)
BFX50K25	NW50	250 (9.84)	75 (2.95)
BFX50K50	NW50	500 (19.69)	75 (2.95)
BFX50K100	NW50	1000 (39.37)	75 (2.95)

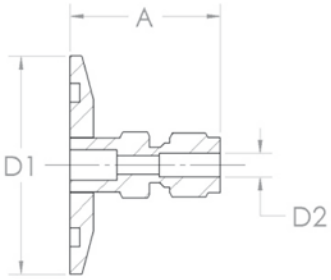


All measurements are in millimetres (inches in brackets)

NW TO **METRIC PIPE ADAPTOR** - 304L STAINLESS STEEL

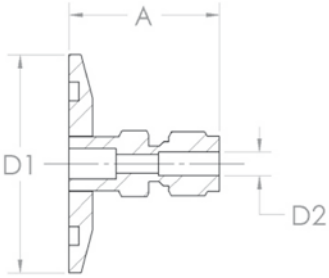
PART NUMBER	PNEUROP	A	D1	D2
KSWA164	NW16	35 (1.38)	30 (1.18)	4 (0.16)
KSWA166	NW16	37 (1.46)	30 (1.18)	6 (0.24)
KSWA168	NW16	38 (1.50)	30 (1.18)	8 (0.31)
KSWA1610	NW16	45 (1.77)	30 (1.18)	10 (0.39)
KSWA1612	NW16	47 (1.85)	30 (1.18)	12 (0.47)
KSWA1616	NW16	53 (2.09)	30 (1.18)	16 (0.63)
KSWA254	NW25	35 (1.38)	40 (1.57)	4 (0.16)
KSWA256	NW25	37 (1.46)	40 (1.57)	6 (0.24)
KSWA258	NW25	38 (1.50)	40 (1.57)	8 (0.31)
KSWA2510	NW25	45 (1.77)	40 (1.57)	10 (0.39)
KSWA2512	NW25	47 (1.85)	40 (1.57)	12 (0.47)
KSWA2516	NW25	53 (2.09)	40 (1.57)	16 (0.63)
KSWA404	NW40	35 (1.38)	55 (2.17)	4 (0.16)
KSWA406	NW40	37 (1.46)	55 (2.17)	6 (0.24)
KSWA408	NW40	38 (1.50)	55 (2.17)	8 (0.31)
KSWA4010	NW40	45 (1.77)	55 (2.17)	10 (0.39)
KSWA4012	NW40	47 (1.85)	55 (2.17)	12 (0.47)
KSWA4016	NW40	53 (2.09)	55 (2.17)	16 (0.63)





NW TO **IMPERIAL PIPE ADAPTOR** - 304L STAINLESS STEEL

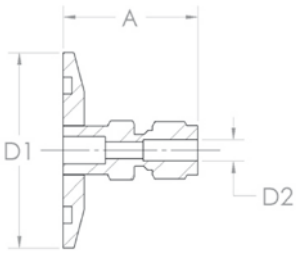
PART NUMBER	PNEUROP	A	D1	D2
KSWA163	NW16	31 (1.22)	30 (1.18)	1/8”
KSWA167	NW16	38 (1.50)	30 (1.18)	1/4”
KSWA169	NW16	40 (1.57)	30 (1.18)	3/8”
KSWA1613	NW16	53 (2.09)	30 (1.18)	1/2”
KSWA253	NW25	34 (1.34)	40 (1.57)	1/8”
KSWA257	NW25	38 (1.50)	40 (1.57)	1/4”
KSWA259	NW25	40 (1.57)	40 (1.57)	3/8”
KSWA2513	NW25	53 (2.09)	40 (1.57)	1/2”
KSWA2519	NW25	54 (2.13)	40 (1.57)	3/4”
KSWA2525	NW25	66 (2.60)	40 (1.57)	1”
KSWA403	NW40	34 (1.34)	55 (2.17)	1/8”
KSWA407	NW40	36 (1.42)	55 (2.17)	1/4”
KSWA409	NW40	40 (1.57)	55 (2.17)	3/8”
KSWA4013	NW40	53 (2.09)	55 (2.17)	1/2”
KSWA4019	NW40	54 (2.13)	55 (2.17)	3/4”
KSWA4025	NW40	66 (2.60)	55 (2.17)	1”



All measurements are in millimetres (inches in brackets)

NW **MALE VCR ADAPTOR** - 304L STAINLESS STEEL

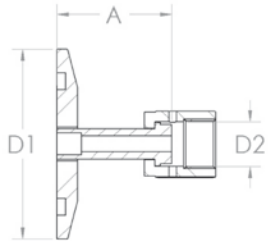
PART NUMBER	PNEUROP	A	D1	D2	VCR
KVCR166M	NW16	35.6 (1.40)	30 (1.18)	4.8 (0.19)	1/4"
KVCR1613M	NW16	41.4 (1.63)	30 (1.18)	10.4 (0.41)	1/2"
KVCR256M	NW25	35.6 (1.40)	40 (1.57)	4.8 (0.19)	1/4"
KVCR2513M	NW25	40.6 (1.60)	40 (1.57)	10.4 (0.41)	1/2"
KVCR2519M	NW25	54.4 (2.14)	40 (1.57)	15.7 (0.62)	3/4"
KVCR406M	NW40	35.6 (1.40)	55 (2.17)	4.8 (0.19)	1/4"
KVCR4013M	NW40	40.6 (1.60)	55 (2.17)	10.4 (0.41)	1/2"
KVCR4019M	NW40	53.3 (2.10)	55 (2.17)	15.7 (0.62)	3/4"
KVCR506M	NW50	35.6 (1.40)	75 (2.95)	4.8 (0.19)	1/4"
KVCR5013M	NW50	40.6 (1.60)	75 (2.95)	10.4 (0.41)	1/2"
KVCR5019M	NW50	53.3 (2.10)	75 (2.95)	15.7 (0.62)	3/4"



NW **FEMALE VCR ADAPTOR** - 304L STAINLESS STEEL

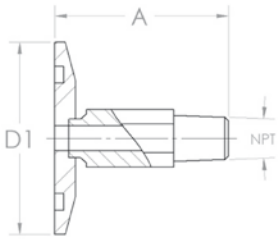
PART NUMBER	PNEUROP	A	D1	D2
KVCR166F	NW16	35.6 (1.40)	30 (1.18)	1/4"
KVCR1613F	NW16	40.5 (1.59)	30 (1.18)	1/2"
KVCR256F	NW25	35.6 (1.40)	40 (1.57)	1/4"
KVCR2513F	NW25	40.6 (1.60)	40 (1.57)	1/2"
KVCR2519F	NW25	54.4 (2.14)	40 (1.57)	3/4"
KVCR406F	NW40	35.6 (1.40)	55 (2.17)	1/4"
KVCR4013F	NW40	40.6 (1.60)	55 (2.17)	1/2"
KVCR4019F	NW40	53.3 (2.10)	55 (2.17)	3/4"
KVCR506F	NW50	35.6 (1.40)	75 (2.95)	1/4"
KVCR5013F	NW50	40.6 (1.60)	75 (2.95)	1/2"
KVCR5019F	NW50	53.3 (2.10)	75 (2.95)	3/4"

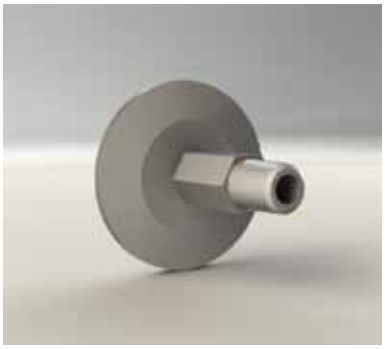
KF to BSP adaptors available on request.



NW **MALE-NPT PIPE ADAPTOR** - 304L STAINLESS STEEL

PART NUMBER	PNEUROP	A	D1	NPT
KNPT163	NW16	40 (1.57)	30 (1.18)	1/8"
KNPT166	NW16	50 (1.97)	30 (1.18)	1/4"
KNPT253	NW25	40 (1.57)	40 (1.57)	1/8"
KNPT256	NW25	50 (1.97)	40 (1.57)	1/4"
KNPT2513	NW25	75 (2.95)	40 (1.57)	1/2"
KNPT2519	NW25	75 (2.95)	40 (1.57)	3/4"
KNPT406	NW40	50 (1.97)	55 (2.17)	1/4"
KNPT4013	NW40	75 (2.95)	55 (2.17)	1/2"
KNPT4019	NW40	75 (2.95)	55 (2.17)	3/4"
KNPT4025	NW40	75 (2.95)	55 (2.17)	1"
KNPT506	NW50	50 (1.97)	75 (2.95)	1/4"
KNPT5013	NW50	75 (2.95)	75 (2.95)	1/2"
KNPT5019	NW50	75 (2.95)	75 (2.95)	3/4"
KNPT5025	NW50	75 (2.95)	75 (2.95)	1"



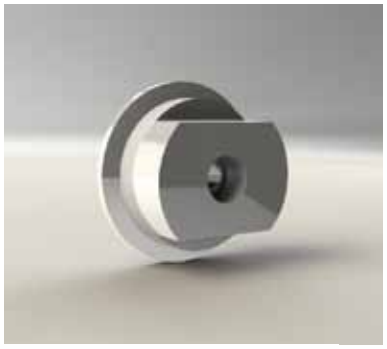


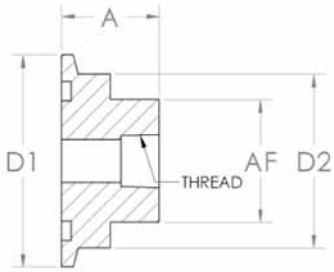
All measurements are in millimetres (inches in brackets)

NW **FEMALE-NPT PIPE ADAPTOR** - 304L STAINLESS STEEL

PART NUMBER	PNEUROP	A	AF	D1	D2	Thread
KNPT163F	NW16	19.1 (0.75)	15.8 (0.62)	30 (1.18)	20 (0.79)	1/8"
KNPT166F	NW16	19.1 (0.75)	15.8 (0.62)	30 (1.18)	20 (0.79)	1/4"
KNPT253F	NW25	19.1 (0.75)	22.4 (0.88)	40 (1.57)	28 (1.10)	1/8"
KNPT256F	NW25	19.1 (0.75)	22.4 (0.88)	40 (1.57)	28 (1.10)	1/4"
KNPT403F	NW40	25.4 (1.00)	31.8 (1.25)	55 (2.17)	45 (1.77)	1/8"
KNPT406F	NW40	25.4 (1.00)	31.8 (1.25)	55 (2.17)	45 (1.77)	1/4"
KNPT503F	NW50	25.4 (1.00)	44.5 (1.75)	75 (2.95)	57 (2.24)	1/8"
KNPT506F	NW50	25.4 (1.00)	44.5 (1.75)	75 (2.95)	57 (2.24)	1/4"

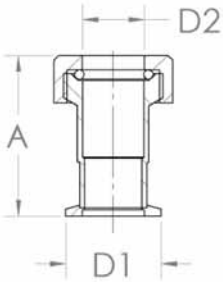
AF = Across flats.





NW **COMPRESSION FITTING** - 304L STAINLESS STEEL

PART NUMBER	PNEUROP	A	D1	D2	Tube OD
KF16TA6	NW16	32 (1.26)	30 (1.18)	6.7 (0.26)	6.4 (0.25)
KF16TA12	NW16	50 (1.97)	30 (1.18)	13.1 (0.52)	12.7 (0.50)
KF16TA19	NW16	56 (2.20)	30 (1.18)	19.4 (0.76)	19.1 (0.75)
KF25TA12	NW25	50 (1.97)	40 (1.57)	13.4 (0.53)	12.7 (0.50)
KF25TA19	NW25	58 (2.28)	40 (1.57)	19.4 (0.76)	19.1 (0.75)
KF25TA25	NW25	62 (2.44)	40 (1.57)	25.8 (1.02)	25.4 (1.00)
KF40TA12	NW40	58 (2.28)	55 (2.17)	13.4 (0.53)	12.7 (0.50)
KF40TA19	NW40	63.5 (2.50)	55 (2.17)	19.4 (0.76)	19.1 (0.75)
KF40TA25	NW40	71 (2.80)	55 (2.17)	25.8 (1.02)	25.4 (1.00)
KF40TA28	NW40	74 (2.91)	55 (2.17)	29 (1.14)	28.6 (1.13)
KF40TA38	NW40	84 (3.31)	55 (2.17)	38.4 (1.51)	38.1 (1.50)
KF50TA19	NW50	63.5 (2.50)	75 (2.95)	19.4 (0.76)	19.1 (0.75)
KF50TA25	NW50	71 (2.80)	75 (2.95)	25.8 (1.02)	25.4 (1.00)
KF50TA28	NW50	74 (2.91)	75 (2.95)	29 (1.14)	28.6 (1.13)
KF50TA38	NW50	87 (3.43)	75 (2.95)	38.4 (1.51)	38.1 (1.50)
KF50TA50	NW50	87 (3.43)	75 (2.95)	51.1 (2.01)	50.8 (2.00)



All measurements are in millimetres (inches in brackets)

KF **LIQUID FEEDTHROUGHS** - STAINLESS STEEL

PART NUMBER	PNEUROP	Tube Termination	Fig.	D1	L1	L2	L3	L4
LFKF16PP	NW16	Plain	1	30 (1.18)	45 (1.77)	75 (2.95)	-	-
LFKF40PP	NW40	Plain	1	55 (2.17)	45 (1.77)	75 (2.95)	-	-
LFKF40SS	NW40	6mm fitting	1	55 (2.17)	73 (2.87)	103 (4.06)	-	-
LFKF402PP	NW40	Plain	2	55 (2.17)	75 (2.95)	45 (1.77)	45 (1.77)	75 (2.95)
LFKF402SS	NW40	6mm fitting	2	55 (2.17)	103 (4.06)	73 (2.87)	73 (2.87)	103 (4.06)

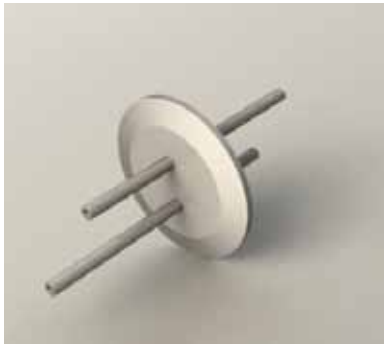


Figure 1

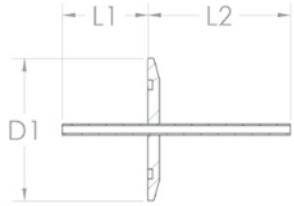
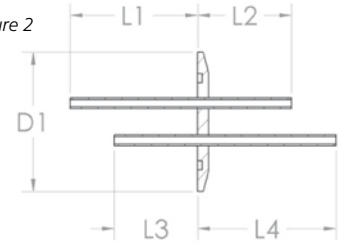


Figure 2



KF **LIQUID NITROGEN FEEDTHROUGHS** - STAINLESS STEEL

PART NUMBER	PNEUROP	Tube Termination	Fig.	D1	L1	L2	L3	L4
LNFKF402PP	NW40	Plain	1	55 (2.17)	45 (1.77)	75 (2.95)	75 (2.95)	45 (1.77)
LNFKF402SS	NW40	6mm fitting	1	55 (2.17)	73 (2.87)	103 (4.06)	103 (4.06)	73 (2.87)
LNFKF16PP	NW16	Plain (6mm - D2)	2	30 (1.18)	45 (1.77)	75 (2.95)	-	-
LNFKF40PPL	NW40	Plain (6mm - D2)	2	55 (2.17)	45 (1.77)	75 (2.95)	-	-

Other flange and fitting configuration available on request.

Figure 1

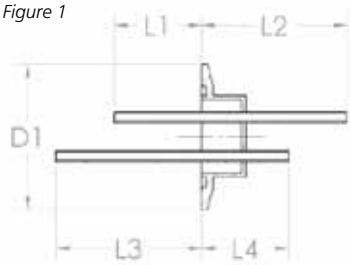
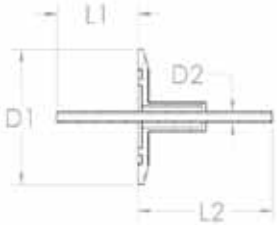


Figure 2



All measurements are in millimetres (inches in brackets)

ISO FLANGES AND FABRICATIONS

The ISO range of flanges and fittings are manufactured from high quality 304L (1.4306)* stainless steel. There are four different configurations as shown. Figure 1 illustrates the double claw-clamp assembly which is the most commonly used configuration; Figure 2 shows the wall clamp assembly where a claw-clamp flange is mounted to a rotatable bolt ring. This assembly combines the claw-clamp flange and bolt flanges with nuts and bolts.
The rotatable bolt ring and fixed bolted assembly is shown in figure 3.
The rotatable bolt ring consists of a rotatable outer ring and a split retainer ring to hold the claw-clamp in place. Finally configuration 4 shows a bolted fixed flange and a tapped flange, or chamber wall for example.
All four configurations use an "O" ring seal held in place by a centering ring. This is effective down to 10^{-7} mbar. With Viton "O" ring assemblies bakable to 200°C (Sustained 150°C).

* 316L (1.4404) available on request.

Figure 1

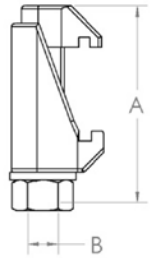
Figure 2

Figure 3

Figure 4

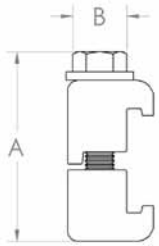
ISO **DOUBLE CLAW CLAMPS** - STEEL PLATED

PART NUMBER	PNEUROP	A	B	Clamps Req'd
ISO63/250DC	ISO63-250	60 (2.36)	M10	4
ISO320/500DC	ISO320-500	75 (2.95)	M12	8
ISO630DC	ISO630	85 (3.35)	M12	12



ISO **DOUBLE CLAW CLAMPS** - ALUMINIUM

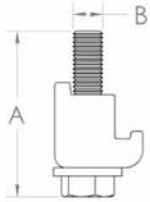
PART NUMBER	PNEUROP	A	B	Clamps Req'd
ISO63/100DCA	ISO63-100	50 (1.97)	M10	4
ISO160/250DCA	ISO160-250	52 (2.05)	M12	8
ISO320/500DCA	ISO320-500	68 (2.68)	M12	12



ISO **WALL CLAMPS** - STEEL

PART NUMBER	PNEUROP	A	B Thread size	Clamps Req'd
ISO63/100WC	ISO63-100	35 (1.38)	M8	4
ISO160/250WC	ISO160-250	40 (1.57)	M10	8
ISO320/500WC	ISO320-500	50 (1.97)	M12	12

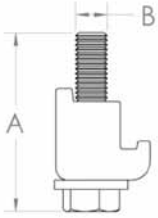
Used with blind tapped holes and centering ring.



ISO **WALL CLAMPS** - ALUMINIUM

PART NUMBER	PNEUROP	A	B Thread size	Clamps Req'd
ISO63/100WCA	ISO63-100	35 (1.38)	M18	4
ISO160/250WCA	ISO160-250	40 (1.57)	M10	8
ISO320/500WCA	ISO320-500	50 (1.97)	M12	12

Used with blind tapped holes and centering ring.

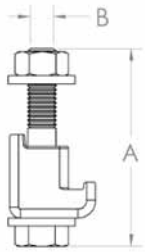


All measurements are in millimetres (inches in brackets)

ISO **WALL CLAMPS, NUT & WASHER** - STEEL

PART NUMBER	PNEUROP	A	Thread Size	Clamps Req'd
ISO63/100WCN	ISO63-100	45 (1.77)	M8	4
ISO160/250WCN	ISO160-250	50 (1.97)	M10	8
ISO320/500WCN	ISO320-500	60 (2.36)	M12	12

Used with through bolt holes and centering ring.
Also available with aluminium clamps on request.

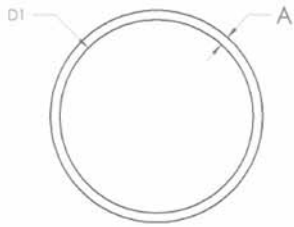


ISO **O-RING** - VITON / NITRILE

PART NUMBER VITON	PNEUROP	A	D1	PART NUMBER NITRILE
ISO63VR	ISO63	5.3 (0.21)	76 (2.99)	ISO63NR
ISO80VR	ISO80	5.3 (0.21)	88 (3.46)	ISO80NR
ISO100VR	ISO100	5.3 (0.21)	107 (4.21)	ISO100NR
ISO160VR	ISO160	5.3 (0.21)	158 (6.22)	ISO160NR
ISO200VR	ISO200	5.3 (0.21)	221 (8.70)	ISO200NR
ISO250VR	ISO250	5.3 (0.21)	253 (9.96)	ISO250NR
ISO320VR	ISO320	7.0 (0.28)	330 (12.99)	ISO320NR
ISO400VR	ISO400	7.0 (0.28)	405 (15.94)	ISO400NR
ISO500VR	ISO500	7.0 (0.28)	507 (19.96)	ISO500NR
ISO630VR	ISO630	7.0 (0.28)	659 (25.94)	ISO630NR

Viton O-ring

Nitrol O-ring



ISO **CENTERING RING** - 304L ST. STEEL INNER / VITON

PART NUMBER	PNEUROP	A	B	D1	O Ring size
ISO63SVCR	ISO63	8 (0.31)	3.9 (0.15)	70 (2.76)	5.3 (0.21)
ISO80SVCR	ISO80	8 (0.31)	3.9 (0.15)	83 (3.27)	5.3 (0.21)
ISO100SVCR	ISO100	8 (0.31)	3.9 (0.15)	102 (4.02)	5.3 (0.21)
ISO160SVCR	ISO160	8 (0.31)	3.9 (0.15)	153 (6.02)	5.3 (0.21)
ISO200SVCR	ISO200	8 (0.31)	3.9 (0.15)	213 (8.39)	5.3 (0.21)
ISO250SVCR	ISO250	8 (0.31)	3.9 (0.15)	261 (10.28)	5.3 (0.21)
ISO320SVCR	ISO320	14 (0.55)	5.6 (0.22)	318 (12.52)	7.0 (0.28)
ISO400SVCR	ISO400	14 (0.55)	5.6 (0.22)	400 (15.75)	7.0 (0.28)
ISO500SVCR	ISO500	14 (0.55)	5.6 (0.22)	501 (19.72)	7.0 (0.28)
ISO630SVCR	ISO630	14 (0.55)	5.6 (0.22)	651 (25.63)	7.0 (0.28)

All measurements are in millimetres (inches in brackets)

ISO **CENTERING RING** - 304L ST. STEEL INNER / NITRILE

PART NUMBER	PNEUROP	A	B	D1	O Ring size
ISO63SNCR	ISO63	8 (0.31)	3.9 (0.15)	70 (2.76)	5.3 (0.21)
ISO80SNCR	ISO80	8 (0.31)	3.9 (0.15)	83 (3.27)	5.3 (0.21)
ISO100SNCR	ISO100	8 (0.31)	3.9 (0.15)	102 (4.02)	5.3 (0.21)
ISO160SNCR	ISO160	8 (0.31)	3.9 (0.15)	153 (6.02)	5.3 (0.21)
ISO200SNCR	ISO200	8 (0.31)	3.9 (0.15)	213 (8.39)	5.3 (0.21)
ISO250SNCR	ISO250	8 (0.31)	3.9 (0.15)	261 (10.28)	5.3 (0.21)
ISO320SNCR	ISO320	14 (0.55)	5.6 (0.22)	318 (12.52)	7.0 (0.28)
ISO400SNCR	ISO400	14 (0.55)	5.6 (0.22)	400 (15.75)	7.0 (0.28)
ISO500SNCR	ISO500	14 (0.55)	5.6 (0.22)	501 (19.72)	7.0 (0.28)
ISO630SNCR	ISO630	14 (0.55)	5.6 (0.22)	651 (25.63)	7.0 (0.28)

ISO **TRAPPED CENTERING RING** - 304L ST. STEEL INNER / VITON

PART NUMBER	PNEUROP	A	B	D1	D2	O Ring size
ISO63SVCRT	ISO63	8 (0.31)	3.9 (0.15)	70 (2.76)	94 (3.7)	5.3 (0.21)
ISO80SVCRT	ISO80	8 (0.31)	3.9 (0.15)	83 (3.27)	109 (4.29)	5.3 (0.21)
ISO100SVCRT	ISO100	8 (0.31)	3.9 (0.15)	102 (4.02)	128 (5.04)	5.3 (0.21)
ISO160SVCRT	ISO160	8 (0.31)	3.9 (0.15)	153 (6.02)	179 (7.05)	5.3 (0.21)
ISO200SVCRT	ISO200	8 (0.31)	3.9 (0.15)	213 (8.39)	239 (9.41)	5.3 (0.21)
ISO250SVCRT	ISO250	8 (0.31)	3.9 (0.15)	261 (10.28)	287 (11.3)	5.3 (0.21)
ISO320SVCRT	ISO320	14 (0.55)	5.6 (0.22)	318 (12.52)	358 (14.09)	7.0 (0.28)
ISO400SVCRT	ISO400	14 (0.55)	5.6 (0.22)	400 (15.75)	440 (17.32)	7.0 (0.28)
ISO500SVCRT	ISO500	14 (0.55)	5.6 (0.22)	501 (19.72)	541 (21.3)	7.0 (0.28)
ISO630SVCRT	ISO630	14 (0.55)	5.6 (0.22)	651 (25.63)	691 (27.2)	7.0 (0.28)

Inner centering ring stainless steel, outer aluminium

ISO **TRAPPED CENTERING RING** - 304L STAINLESS STEEL / NITRILE

PART NUMBER	PNEUROP	A	B	D1	D2	O Ring size
ISO63SNCRT	ISO63	8 (0.31)	3.9 (0.15)	70 (2.76)	94 (3.7)	5.3 (0.21)
ISO80SNCRT	ISO80	8 (0.31)	3.9 (0.15)	83 (3.27)	109 (4.29)	5.3 (0.21)
ISO100SNCRT	ISO100	8 (0.31)	3.9 (0.15)	102 (4.02)	128 (5.04)	5.3 (0.21)
ISO160SNCRT	ISO160	8 (0.31)	3.9 (0.15)	153 (6.02)	179 (7.05)	5.3 (0.21)
ISO200SNCRT	ISO200	8 (0.31)	3.9 (0.15)	213 (8.39)	239 (9.41)	5.3 (0.21)
ISO250SNCRT	ISO250	8 (0.31)	3.9 (0.15)	261 (10.28)	287 (11.3)	5.3 (0.21)
ISO320SNCRT	ISO320	14 (0.55)	5.6 (0.22)	318 (12.52)	358 (14.09)	7.0 (0.28)
ISO400SNCRT	ISO400	14 (0.55)	5.6 (0.22)	400 (15.75)	440 (17.32)	7.0 (0.28)
ISO500SNCRT	ISO500	14 (0.55)	5.6 (0.22)	501 (19.72)	541 (21.3)	7.0 (0.28)
ISO630SNCRT	ISO630	14 (0.55)	5.6 (0.22)	651 (25.63)	691 (27.2)	7.0 (0.28)

Inner centering ring stainless steel, outer aluminium

All measurements are in millimetres (inches in brackets)

ISO **TRAPPED CENTERING RING** - ALUMINIUM / VITON

PART NUMBER	PNEUROP	A	B	D1	D2	O Ring size
ISO63AVCRT	ISO63	8 (0.31)	3.9 (0.15)	70 (2.76)	94 (3.7)	5.3 (0.21)
ISO80AVCRT	ISO80	8 (0.31)	3.9 (0.15)	83 (3.27)	109 (4.29)	5.3 (0.21)
ISO100AVCRT	ISO100	8 (0.31)	3.9 (0.15)	102 (4.02)	128 (5.04)	5.3 (0.21)
ISO160AVCRT	ISO160	8 (0.31)	3.9 (0.15)	153 (6.02)	179 (7.05)	5.3 (0.21)
ISO200AVCRT	ISO200	8 (0.31)	3.9 (0.15)	213 (8.39)	239 (9.41)	5.3 (0.21)
ISO250AVCRT	ISO250	8 (0.31)	3.9 (0.15)	261 (10.28)	287 (11.3)	5.3 (0.21)
ISO320AVCRT	ISO320	14 (0.55)	5.6 (0.22)	318 (12.52)	358 (14.09)	7.0 (0.28)
ISO400AVCRT	ISO400	14 (0.55)	5.6 (0.22)	400 (15.75)	440 (17.32)	7.0 (0.28)
ISO500AVCRT	ISO500	14 (0.55)	5.6 (0.22)	501 (19.72)	541 (21.3)	7.0 (0.28)
ISO630AVCRT	ISO630	14 (0.55)	5.6 (0.22)	651 (25.63)	691 (27.2)	7.0 (0.28)

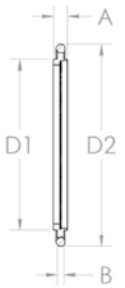
ISO **TRAPPED CENTERING RING** -ALUMINIUM / NITRILE

PART NUMBER	PNEUROP	A	B	D1	D2	O Ring size
ISO63ANCRT	ISO63	8 (0.31)	3.9 (0.15)	70 (2.76)	94 (3.7)	5.3 (0.21)
ISO80ANCRT	ISO80	8 (0.31)	3.9 (0.15)	83 (3.27)	109 (4.29)	5.3 (0.21)
ISO100ANCRT	ISO100	8 (0.31)	3.9 (0.15)	102 (4.02)	128 (5.04)	5.3 (0.21)
ISO160ANCRT	ISO160	8 (0.31)	3.9 (0.15)	153 (6.02)	179 (7.05)	5.3 (0.21)
ISO200ANCRT	ISO200	8 (0.31)	3.9 (0.15)	213 (8.39)	239 (9.41)	5.3 (0.21)
ISO250ANCRT	ISO250	8 (0.31)	3.9 (0.15)	261 (10.28)	287 (11.3)	5.3 (0.21)
ISO320ANCRT	ISO320	14 (0.55)	5.6 (0.22)	318 (12.52)	358 (14.09)	7.0 (0.28)
ISO400ANCRT	ISO400	14 (0.55)	5.6 (0.22)	400 (15.75)	440 (17.32)	7.0 (0.28)
ISO500ANCRT	ISO500	14 (0.55)	5.6 (0.22)	501 (19.72)	541 (21.3)	7.0 (0.28)
ISO630ANCRT	ISO630	14 (0.55)	5.6 (0.22)	651 (25.63)	691 (27.2)	7.0 (0.28)

ISO **MESH CENTERING RING** -STAINLESS / VITON

PART NUMBER	PNEUROP	A	B	D1	D2	O Ring size
ISO63MCRV	ISO63	8 (0.31)	3.9 (0.15)	70 (2.76)	86.6 (3.41)	5.3 (0.21)
ISO80MCRV	ISO80	8 (0.31)	3.9 (0.15)	83 (3.27)	98.6 (3.88)	5.3 (0.21)
ISO100MCRV	ISO100	8 (0.31)	3.9 (0.15)	102 (4.02)	117.6 (4.63)	5.3 (0.21)
ISO160MCRV	ISO160	8 (0.31)	3.9 (0.15)	153 (6.02)	168.6 (6.64)	5.3 (0.21)
ISO200MCRV	ISO100	8 (0.31)	3.9 (0.15)	102 (4.02)	231.6 (9.12)	5.3 (0.21)
ISO250MCRV	ISO160	8 (0.31)	3.9 (0.15)	153 (6.02)	263.6 (10.38)	5.3 (0.21)

Stainless steel centering ring with mesh screen and replacement Viton 'O' ring.



All measurements are in millimetres (inches in brackets)

ISO **MESH CENTERING RING** -STAINLESS / NITRILE

PART NUMBER	PNEUROP	A	B	D1	D2	O Ring size
ISO63MCRN	ISO63	8 (0.31)	3.9 (0.15)	70 (2.76)	86.6 (3.41)	5.3 (0.21)
ISO80MCRN	ISO80	8 (0.31)	3.9 (0.15)	83 (3.27)	98.6 (3.88)	5.3 (0.21)
ISO100MCRN	ISO100	8 (0.31)	3.9 (0.15)	102 (4.02)	117.6 (4.63)	5.3 (0.21)
ISO160MCRN	ISO160	8 (0.31)	3.9 (0.15)	153 (6.02)	168.6 (6.64)	5.3 (0.21)
ISO200MCRN	ISO100	8 (0.31)	3.9 (0.15)	102 (4.02)	231.6 (9.12)	5.3 (0.21)
ISO250MCRN	ISO160	8 (0.31)	3.9 (0.15)	153 (6.02)	263.6 (10.38)	5.3 (0.21)

Stainless steel centering ring with mesh screen and replacement Viton 'O' ring.

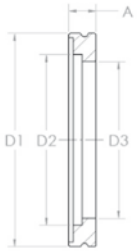
ISO **BLANK CLAW CLAMP FLANGE** - 304L STAINLESS STEEL.

PART NUMBER	PNEUROP	A	D1	D2
ISO63BK	ISO63	12 (0.47)	95 (3.74)	70 (2.76)
ISO80BK	ISO80	12 (0.47)	110 (4.33)	83 (3.27)
ISO100BK	ISO100	12 (0.47)	130 (5.12)	102 (4.02)
ISO160BK	ISO160	12 (0.47)	180 (7.09)	153 (6.02)
ISO200BK	ISO200	12 (0.47)	240 (9.45)	213 (8.39)
ISO250BK	ISO250	12 (0.47)	290 (11.42)	261 (10.28)
ISO320BK	ISO320	17 (0.67)	370 (14.57)	318 (12.52)
ISO400BK	ISO400	17 (0.67)	450 (17.72)	400 (15.75)
ISO500BK	ISO500	17 (0.67)	550 (21.65)	501 (19.72)
ISO630BK	ISO630	17 (0.67)	690 (27.17)	651 (25.63)

ISO **BORED CLAW CLAMP FLANGE** - 304L STAINLESS STEEL.

PART NUMBER	PNEUROP	A	D1	D2	D3
ISO63B76	ISO63	12 (0.47)	95 (3.74)	76 (2.99)	70 (2.76)
ISO80B89	ISO80	12 (0.47)	110 (4.33)	89 (3.50)	83 (3.27)
ISO100B108	ISO100	12 (0.47)	130 (5.12)	108 (4.25)	102 (4.02)
ISO160B159	ISO160	12 (0.47)	180 (7.09)	159 (6.26)	153 (6.02)
ISO200B219	ISO200	12 (0.47)	240 (9.45)	219 (8.62)	213 (8.39)
ISO250B267	ISO250	12 (0.47)	290 (11.42)	267 (10.51)	261 (10.28)
ISO320B324	ISO320	17 (0.67)	370 (14.57)	324 (12.76)	318 (12.52)
ISO400B406	ISO400	17 (0.67)	450 (17.72)	406 (15.98)	400 (15.75)
ISO500B508	ISO500	17 (0.67)	550 (21.65)	508 (20.00)	501 (19.72)
ISO630B660	ISO630	17 (0.67)	690 (27.17)	660 (25.98)	651 (25.63)

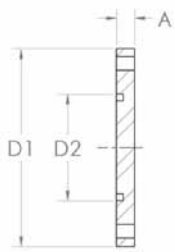
Imperial tube and special bores available on request.
ISO320B324 has a counter bored from vacuum side, D3 = C-ring dimension.



All measurements are in millimetres (inches in brackets)

ISO **BLANK FIXED BOLTED FLANGE** - 304L STAINLESS STEEL.

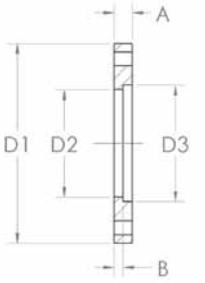
PART NUMBER	PNEUROP	A	D1	D2
ISO63FBK	ISO63	12 (0.47)	130 (5.12)	70 (2.76)
ISO80FBK	ISO80	12 (0.47)	145 (5.71)	83 (3.27)
ISO100FBK	ISO100	12 (0.47)	165 (6.50)	102 (4.02)
ISO160FBK	ISO160	12 (0.47)	225 (8.86)	153 (6.02)
ISO200FBK	ISO200	12 (0.47)	285 (11.22)	213 (8.39)
ISO250FBK	ISO250	12 (0.47)	335 (13.19)	261 (10.28)
ISO320FBK	ISO320	17 (0.67)	425 (16.73)	318 (12.52)
ISO400FBK	ISO400	17 (0.67)	510 (20.08)	400 (15.75)



ISO **BORED FIXED BOLTED FLANGE** - 304L STAINLESS STEEL.

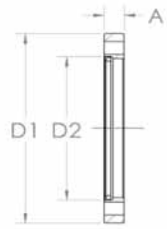
PART NUMBER	PNEUROP	A	B	D1	D2	D3
ISO63F76	ISO63	12 (0.47)	6 (0.24)	130 (5.12)	70 (2.76)	76 (2.99)
ISO80F89	ISO80	12 (0.47)	6 (0.24)	145 (5.71)	83 (3.27)	89 (3.50)
ISO100F108	ISO100	12 (0.47)	6 (0.24)	165 (6.50)	102 (4.02)	108 (4.25)
ISO160F159	ISO160	12 (0.47)	6 (0.24)	225 (8.86)	153 (6.02)	159 (6.26)
ISO200F219	ISO200	12 (0.47)	6 (0.24)	285 (11.22)	213 (8.39)	219 (8.62)
ISO250F267	ISO250	12 (0.47)	6 (0.24)	335 (13.19)	261 (10.28)	267 (10.51)
ISO320F324	ISO320	17 (0.67)	6 (0.24)	425 (16.73)	318 (12.52)	324 (12.76)
ISO400F406	ISO400	17 (0.67)	10 (0.29))	510 (20.08)	400 (15.75)	406 (15.98)

Imperial tube and special bores available on request. D3 = Tube Diameter



ISO **ROTATABLE BOLT RING** - STEEL.

PART NUMBER	PNEUROP	A	D1	D2
ISO63R	ISO63	12 (0.47)	130 (5.12)	98.5 (3.88)
ISO100R	ISO80	12 (0.47)	165 (6.50)	133.5 (5.26)
ISO160R	ISO100	16 (0.63)	225 (8.86)	185.7 (7.31)
ISO200R	ISO160	16 (0.63)	285 (11.22)	245.7 (9.67)
ISO250R	ISO200	16 (0.63)	335 (13.19)	295.7 (11.64)



All measurements are in millimetres (inches in brackets)

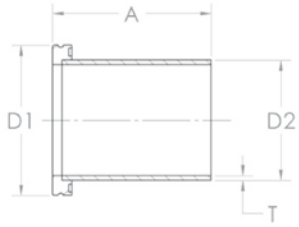
ISO **RETAINING RING** - STEEL

PART NUMBER	PNEUROP	A
ISO63RR	ISO63	3 (0.12)
ISO100RR	ISO80	3 (0.12)
ISO160RR	ISO100	5 (0.20)
ISO200RR	ISO160	5 (0.20)
ISO250RR	ISO200	5 (0.20)
ISO320RR	ISO320	5 (0.20)
ISO400RR	ISO400	8 (0.31)

ISO **TUBULATION** - 304L STAINLESS STEEL

PART NUMBER	PNEUROP	A	D1	D2	T
ISO63TU	ISO63	100 (3.94)	95 (3.74)	76 (2.99)	3.0 (0.12)
ISO80TU	ISO80	100 (3.94)	110 (4.33)	89 (3.50)	5.5 (0.22)
ISO100TU	ISO100	100 (3.94)	130 (5.12)	108 (4.25)	3.0 (0.12)
ISO160TU	ISO160	100 (3.94)	180 (7.09)	159 (6.26)	3.0 (0.12)
ISO200TU	ISO200	100 (3.94)	240 (9.45)	219 (8.62)	3.0 (0.12)
ISO250TU	ISO250	100 (3.94)	290 (11.42)	267 (10.51)	3.0 (0.12)
ISO320TU	ISO320	100 (3.94)	370 (14.57)	324 (12.76)	3.0 (0.12)
ISO400TU	ISO400	100 (3.94)	450 (17.72)	406 (15.98)	3.0 (0.12)
ISO500TU	ISO500	100 (3.94)	550 (21.65)	508 (20.00)	4.0 (0.16)
ISO630TU	ISO630	100 (3.94)	690 (27.17)	660 (25.98)	5.0 (0.20)

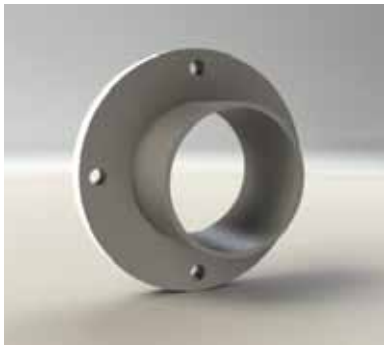
Special lengths available on request.

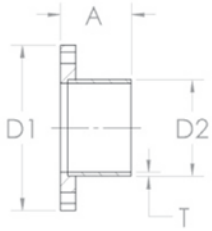


ISO **FIXED BOLTED TUBULATION** - 304L STAINLESS STEEL

PART NUMBER	PNEUROP	A	D1	D2	T
ISO63FTU	ISO63	100 (3.94)	130 (5.12)	76 (2.99)	3.0 (0.12)
ISO80FTU	ISO80	100 (3.94)	145 (5.71)	89 (3.50)	5.5 (0.22)
ISO100FTU	ISO100	100 (3.94)	165 (6.50)	108 (4.25)	3.0 (0.12)
ISO160FTU	ISO160	100 (3.94)	225 (8.86)	159 (6.26)	3.0 (0.12)
ISO200FTU	ISO200	100 (3.94)	285 (11.22)	219 (8.62)	3.0 (0.12)
ISO250FTU	ISO250	100 (3.94)	335 (13.19)	267 (10.51)	3.0 (0.12)
ISO320FTU	ISO320	100 (3.94)	425 (16.73)	324 (12.76)	3.0 (0.12)
ISO400FTU	ISO400	100 (3.94)	510 (20.08)	406 (15.98)	3.0 (0.12)
ISO500FTU	ISO500	100 (3.94)	610 (24.02)	508 (20.00)	4.0 (0.16)
ISO630FTU	ISO630	100 (3.94)	750 (29.53)	660 (25.98)	5.0 (0.20)

Special lengths available on request.



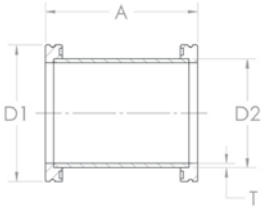


All measurements are in millimetres (inches in brackets)

ISO **STRAIGHT CONNECTOR** - 304L STAINLESS STEEL

PART NUMBER	PNEUROP	A	D1	D2	T
ISO63SC	ISO63	100 (3.94)	95 (3.74)	76 (2.99)	3 (0.12)
ISO80SC	ISO80	100 (3.94)	110 (4.33)	89 (3.50)	3 (0.12)
ISO100SC	ISO100	100 (3.94)	130 (5.12)	108 (4.25)	3 (0.12)
ISO160SC	ISO160	100 (3.94)	180 (7.09)	159 (6.26)	3 (0.12)
ISO200SC	ISO200	100 (3.94)	240 (9.45)	219 (8.62)	3 (0.12)
ISO250SC	ISO250	100 (3.94)	290 (11.42)	267 (10.51)	3 (0.12)

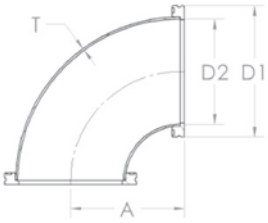
Special lengths available on request.



ISO **90 DEGREE ELBOW** - 304L STAINLESS STEEL

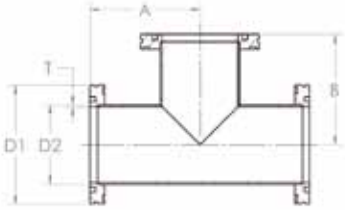
PART NUMBER	PNEUROP	A	D1	D2	T	Elbow
ISO63E	ISO63	88 (3.46)	95 (3.74)	70 (2.76)	2 (0.08)	R
ISO80E	ISO80	98 (3.86)	110 (4.33)	70 (2.76)	2 (0.08)	R
ISO100E	ISO100	108 (4.25)	130 (5.12)	108 (4.25)	2 (0.08)	R
ISO160E	ISO160	138 (5.43)	180 (7.09)	159 (6.26)	3 (0.12)	M
ISO200E	ISO200	178 (7.01)	240 (9.45)	219 (8.62)	3 (0.12)	M
ISO250E	ISO250	208 (8.19)	290 (11.42)	267 (10.51)	3 (0.12)	M

R - Radius elbow
M - Mitred elbow



ISO **TEE** - 304L STAINLESS STEEL

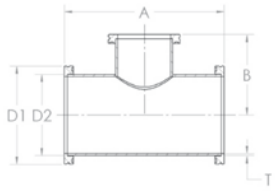
PART NUMBER	PNEUROP	A	B	D1	D2	T
ISO63TE	ISO63	88 (3.46)	88 (3.46)	95 (3.74)	76 (2.99)	3.0 (0.12)
ISO80TE	ISO80	98 (3.86)	98 (3.86)	110 (4.33)	89 (3.50)	5.5 (0.22)
ISO100TE	ISO100	108 (4.25)	108 (4.25)	130 (5.12)	108 (4.25)	3.0 (0.12)
ISO160TE	ISO160	138 (5.43)	138 (5.43)	180 (7.09)	159 (6.26)	3.0 (0.12)
ISO200TE	ISO200	178 (7.01)	178 (7.01)	240 (9.45)	219 (8.62)	3.0 (0.12)
ISO250TE	ISO250	208 (8.19)	208 (8.19)	290 (11.42)	267 (10.51)	3.0 (0.12)



All measurements are in millimetres (inches in brackets)

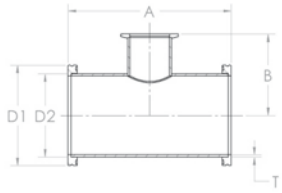
ISO **UNEQUAL TEE** - 304L STAINLESS STEEL

PART NUMBER	PNEUROP	A	B	D1	D2	T
ISO100TE63	ISO100/63	216 (8.50)	107 (4.21)	130 (5.12)	108 (4.25)	3 (0.12)
ISO160TE63	ISO160/63	276 (10.87)	130 (5.12)	180 (7.09)	159 (6.26)	3 (0.12)
ISO160TE100	ISO160/100	276 (10.87)	131 (5.16)	180 (7.09)	159 (6.26)	3 (0.12)
ISO200TE63	ISO200/63	276 (10.87)	160 (6.30)	240 (9.45)	219 (8.62)	3 (0.12)
ISO200TE100	ISO200/100	276 (10.87)	161 (6.34)	240 (9.45)	219 (8.62)	3 (0.12)
ISO200TE160	ISO200/160	276 (10.87)	168 (6.61)	240 (9.45)	219 (8.62)	3 (0.12)



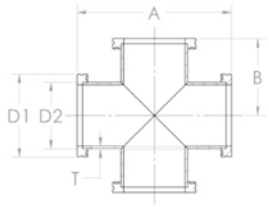
ISO-KF **UNEQUAL TEE** - 304L STAINLESS STEEL

PART NUMBER	PNEUROP	A	B	D1	D2	T
ISO63TE16	ISO63/NW16	204 (8.03)	58 (2.28)	95 (3.74)	76 (2.99)	3 (0.12)
ISO63TE25	ISO63/NW25	204 (8.03)	79 (3.11)	95 (3.74)	76 (2.99)	3 (0.12)
ISO63TE40	ISO63/NW40	204 (8.03)	76 (2.99)	95 (3.74)	76 (2.99)	3 (0.12)
ISO100TE25	ISO100/NW25	260 (10.24)	98 (3.86)	130 (5.12)	108 (4.25)	3 (0.12)
ISO100TE40	ISO100/NW40	260 (10.24)	95 (3.74)	130 (5.12)	108 (4.25)	3 (0.12)



ISO **4-WAY CROSS** - 304L STAINLESS STEEL

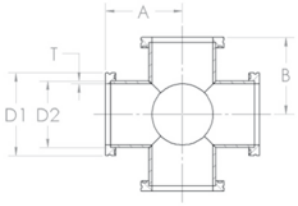
PART NUMBER	PNEUROP	A	B	D1	D2	T
ISO63X	ISO63	176 (6.93)	88 (3.46)	95 (3.74)	76 (2.99)	3.0 (0.12)
ISO80X	ISO80	196 (7.72)	98 (3.86)	110 (4.33)	89 (3.50)	5.5 (0.22)
ISO100X	ISO100	216 (8.50)	108 (4.25)	130 (5.12)	108 (4.25)	3.0 (0.12)
ISO160X	ISO160	276 (10.87)	138 (5.43)	180 (7.09)	159 (6.26)	3.0 (0.12)
ISO200X	ISO200	356 (14.02)	178 (7.01)	240 (9.45)	219 (8.62)	3.0 (0.12)
ISO250X	ISO250	416 (16.38)	208 (8.19)	290 (11.42)	267 (10.51)	3.0 (0.12)



All measurements are in millimetres (inches in brackets)

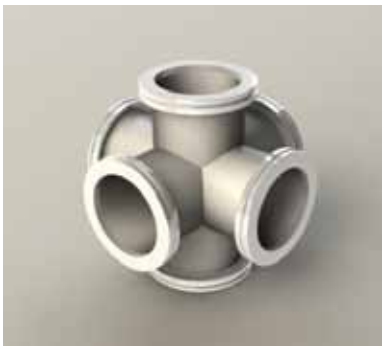
ISO **5-WAY CROSS** - 304L STAINLESS STEEL

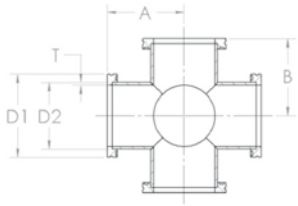
PART NUMBER	PNEUROP	A	B	D1	D2	T
ISO63FWX	ISO63	88 (3.46)	88 (3.46)	95 (3.74)	76 (2.99)	3.0 (0.12)
ISO80FWX	ISO80	98 (3.86)	98 (3.86)	110 (4.33)	89 (3.50)	5.5 (0.22)
ISO100FWX	ISO100	108 (4.25)	108 (4.25)	130 (5.12)	108 (4.25)	3.0 (0.12)
ISO160FWX	ISO160	138 (5.43)	138 (5.43)	180 (7.09)	159 (6.26)	3.0 (0.12)
ISO200FWX	ISO200	178 (7.01)	178 (7.01)	240 (9.45)	219 (8.62)	3.0 (0.12)
ISO250FWX	ISO250	208 (8.19)	208 (8.19)	290 (11.42)	267 (10.51)	3.0 (0.12)



ISO **6-WAY CROSS** - 304L STAINLESS STEEL

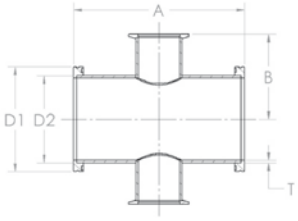
PART NUMBER	PNEUROP	A	B	D1	D2	T
ISO63XX	ISO63	88 (3.46)	88 (3.46)	95 (3.74)	76 (2.99)	3.0 (0.12)
ISO80XX	ISO80	98 (3.86)	98 (3.86)	110 (4.33)	89 (3.50)	5.5 (0.22)
ISO100XX	ISO100	108 (4.25)	108 (4.25)	130 (5.12)	108 (4.25)	3.0 (0.12)
ISO160XX	ISO160	138 (5.43)	138 (5.43)	180 (7.09)	159 (6.26)	3.0 (0.12)
ISO200XX	ISO200	178 (7.01)	178 (7.01)	240 (9.45)	219 (8.62)	3.0 (0.12)
ISO250XX	ISO250	208 (8.19)	208 (8.19)	290 (11.42)	267 (10.51)	3.0 (0.12)





ISO-KF **REDUCING CROSS** - 304L STAINLESS STEEL

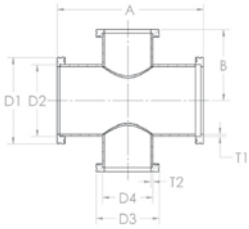
PART NUMBER	PNEUROP	A	B	D1	D2	T
ISO63X16	ISO63/NW16	204 (8.03)	58 (2.28)	95 (3.74)	76 (2.99)	3 (0.12)
ISO63X25	ISO63/NW25	204 (8.03)	79 (3.11)	95 (3.74)	76 (2.99)	3 (0.12)
ISO63X40	ISO63/NW40	204 (8.03)	76 (2.99)	95 (3.74)	76 (2.99)	3 (0.12)
ISO63X50	ISO63/NW50	204 (8.03)	92 (3.62)	95 (3.74)	76 (2.99)	3 (0.12)
ISO100X25	ISO100/NW25	260 (10.24)	98 (3.86)	130 (5.12)	108 (4.25)	3 (0.12)
ISO100X40	ISO100/NW40	260 (10.24)	95 (3.74)	130 (5.12)	108 (4.25)	3 (0.12)
ISO100X50	ISO100/NW50	260 (10.24)	111 (4.37)	130 (5.12)	108 (4.25)	3 (0.12)
ISO160X40	ISO160/NW40	320 (12.60)	121 (4.76)	130 (5.12)	159 (6.26)	3 (0.12)
ISO160X50	ISO160/NW50	320 (12.60)	136 (5.35)	130 (5.12)	159 (6.26)	3 (0.12)



All measurements are in millimetres (inches in brackets)

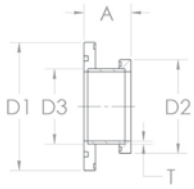
ISO **REDUCING CROSS** - 304L STAINLESS STEEL

PART NUMBER	PNEUROP	A	B	D1	D2	D3	D4	T1	T2
ISO100X63	ISO100/63	216 (8.5)	107 (4.21)	130 (5.12)	108 (4.25)	95 (3.74)	76 (2.99)	3 (0.12)	3 (0.12)
ISO160X63	ISO160/63	276 (10.87)	130 (5.12)	180 (7.09)	159 (6.26)	95 (3.74)	76 (2.99)	3 (0.12)	3 (0.12)
ISO160X100	ISO160/100	276 (10.87)	131 (5.16)	180 (7.09)	159 (6.26)	130 (5.12)	108 (4.25)	3 (0.12)	3 (0.12)
ISO200X160	ISO200/160	256 (10.08)	168 (6.61)	240 (9.45)	219 (8.62)	180 (7.09)	159 (6.26)	3 (0.12)	3 (0.12)



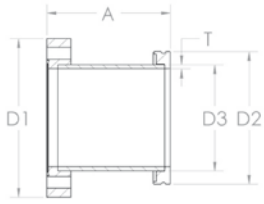
ISO **REDUCING ADAPTOR** - 304L STAINLESS STEEL

PART NUMBER	PNEUROP	A	D1	D2	D3	T
ISO80R63	ISO63/80	50 (1.97)	110 (4.33)	95 (3.74)	76 (2.99)	3.0 (0.12)
ISO100R63	ISO63/100	50 (1.97)	130 (5.12)	95 (3.74)	76 (2.99)	3.0 (0.12)
ISO160R63	ISO63/160	50 (1.97)	180 (7.09)	95 (3.74)	76 (2.99)	3.0 (0.12)
ISO200R63	ISO63/200	90 (3.54)	240 (9.45)	95 (3.74)	76 (2.99)	3.0 (0.12)
ISO100R80	ISO80/100	50 (1.97)	130 (5.12)	110 (4.33)	89 (3.50)	5.5 (0.22)
ISO160R80	ISO80/160	50 (1.97)	180 (7.09)	110 (4.33)	89 (3.50)	5.5 (0.22)
ISO160R100	ISO100/160	50 (1.97)	180 (7.09)	130 (5.12)	108 (4.25)	3.0 (0.12)
ISO200R100	ISO100/200	90 (3.54)	240 (9.45)	130 (5.12)	108 (4.25)	3.0 (0.12)
ISO200R160	ISO160/200	90 (3.54)	240 (9.45)	180 (7.09)	159 (6.26)	3.0 (0.12)
ISO250R160	ISO160/250	90 (3.54)	290 (11.42)	180 (7.09)	159 (6.26)	3.0 (0.12)
ISO250R200	ISO200/250	90 (3.54)	290 (11.42)	240 (9.45)	219 (8.62)	3.0 (0.12)



ISO TO CF **ADAPTOR** - 304L STAINLESS STEEL.

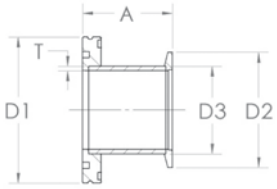
PART NUMBER	PNEUROP	A	D1	D2	D3	T
SA6363	ISO63/CF63	90 (3.54)	114 (4.49)	95 (3.74)	76 (2.99)	3 (0.12)
SA1063	ISO63/CF100	90 (3.54)	152 (5.98)	95 (3.74)	76 (2.99)	3 (0.12)
SA1010	ISO100/CF100	90 (3.54)	152 (5.98)	130 (5.12)	108 (4.25)	3 (0.12)
SA1016	ISO160/CF100	90 (3.54)	152 (5.98)	180 (7.09)	159 (6.26)	3 (0.12)
SA1510	ISO100/CF150	90 (3.54)	203 (7.99)	130 (5.12)	105 (4.13)	3 (0.12)
SA1516	ISO160/CF150	90 (3.54)	203 (7.99)	180 (7.09)	159 (6.26)	3 (0.12)



All measurements are in millimetres (inches in brackets)

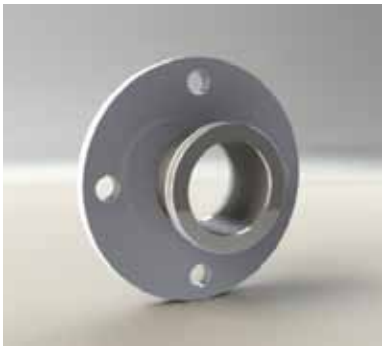
ISO TO NW **ADAPTOR** - 304L STAINLESS STEEL.

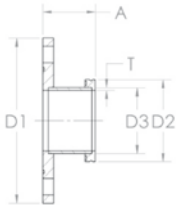
PART NUMBER	PNEUROP	A	D1	D2	D3	T
SK6325	ISO63/NW25	50 (1.97)	95 (3.74)	40 (1.57)	28.0 (1.10)	2 (0.08)
SK6340	ISO63/NW40	50 (1.97)	95 (3.74)	55 (2.17)	44.5 (1.75)	2 (0.08)
SK6350	ISO63/NW50	50 (1.97)	95 (3.74)	75 (2.95)	57.0 (2.24)	3 (0.12)
SK1025	ISO100/NW25	50 (1.97)	130 (5.12)	40 (1.57)	28.0 (1.10)	2 (0.08)
SK1040	ISO100/NW40	50 (1.97)	130 (5.12)	55 (2.17)	44.5 (1.75)	2 (0.08)
SK1050	ISO100/NW50	50 (1.97)	130 (5.12)	75 (2.95)	57.0 (2.24)	3 (0.12)



ISO TO ASA **ADAPTOR** - 304L STAINLESS STEEL

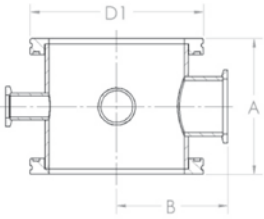
PART NUMBER	PNEUROP	A	D1	D2	D3	T
ISA632G	ISO63/ASA2	106 (4.17)	152 (5.98)	95 (3.74)	76 (2.99)	3.0 (0.12)
ISA802G	ISO80/ASA2	106 (4.17)	152 (5.98)	110 (4.33)	89 (3.50)	5.5 (0.22)
ISA1002G	ISO100/ASA2	106 (4.17)	152 (5.98)	130 (5.12)	108 (4.25)	3.0 (0.12)
ISA633G	ISO63/ASA3	106 (4.17)	190 (7.48)	95 (3.74)	76 (2.99)	3.0 (0.12)
ISA803G	ISO80/ASA3	106 (4.17)	190 (7.48)	110 (4.33)	89 (3.50)	5.5 (0.22)
ISA1003G	ISO100/ASA3	106 (4.17)	190 (7.48)	130 (5.12)	108 (4.25)	3.0 (0.12)





ISO **STRAIGHT CONNECTOR WITH KF LATERAL PORTS** - 304L STAINLESS STEEL.

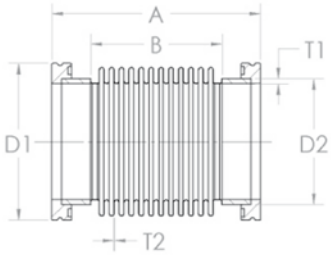
PART NUMBER	PNEUROP	A	B (NW16)	B (NW40)	D1
ISO63SC4016K	ISO63/NW40/16	88 (3.46)	60 (2.36)	80 (3.15)	95 (3.74)
ISO100SC4016K	ISO100/NW40/16	108 (4.25)	75 (2.95)	75 (2.95)	130 (5.12)
ISO160SC4016K	ISO100/NW40/16	138 (5.43)	100 (3.94)	100 (3.94)	180 (7.09)



All measurements are in millimetres (inches in brackets)

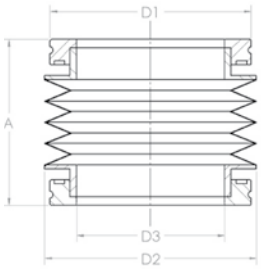
ISO **FLEXIBLE BELLOWS** - STAINLESS STEEL

PART NUMBER	PNEUROP	A	B	D1	D2	T1	T2
ISO63FXB	ISO63	127 (5.00)	70 (2.76)	95 (3.74)	76 (2.99)	3 (0.12)	0.2 (0.01)
ISO80FXB	ISO80	127 (5.00)	70 (2.76)	110 (4.33)	89 (3.50)	3 (0.12)	0.2 (0.01)
ISO100FXB	ISO100	127 (5.00)	60 (2.36)	130 (5.12)	108 (4.25)	3 (0.12)	0.4 (0.02)
ISO160FXB	ISO160	220 (8.66)	112 (4.41)	180 (7.09)	159 (6.26)	3 (0.12)	0.4 (0.02)
ISO200FXB	ISO200	220 (8.66)	170 (6.69)	240 (9.45)	219 (8.62)	3 (0.12)	0.6 (0.02)



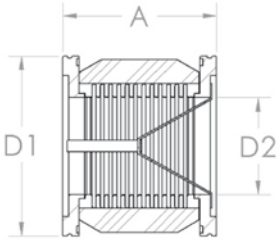
ISO **EDGE WELDED BELLOWS** - STAINLESS STEEL

PART NUMBER	PNEUROP	Convolutions	Stroke	A	D1	D2	D3	Bellows ID
ISO63EWB	ISO63	11	30.8 (1.21)	100 (3.94)	95 (3.74)	100 (3.94)	70 (2.76)	75 (2.95)
ISO100EWB	ISO100	11	33.0 (1.30)	115 (4.53)	130 (5.12)	132 (5.2)	104 (4.09)	102 (4.02)
ISO160EWB	ISO160	13	44.2 (1.74)	140 (5.51)	180 (7.09)	185 (7.28)	153 (6.02)	150 (5.91)



ISO **VIBRATION ISOLATOR** - STAINLESS STEEL

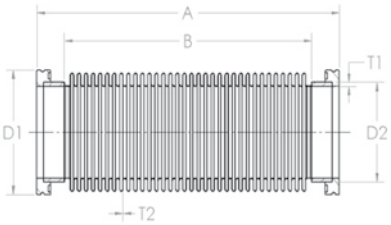
PART NUMBER	PNEUROP	A	D1	D2
ISO63VBD	ISO63	85 (3.35)	95 (3.74)	52 (2.05)
ISO100VBD	ISO100	85 (3.35)	130 (5.12)	76 (2.99)
ISO160VBD	ISO160	85 (3.35)	180 (7.09)	95 (3.74)



All measurements are in millimetres (inches in brackets)

ISO **FLEXIBLE HOSE** - STAINLESS STEEL

PART NUMBER	PNEUROP	A	B	D1	D2	T1	T2
ISO63FX25	ISO63	250 (9.84)	172 (6.77)	95 (3.74)	76 (2.99)	3 (0.12)	0.28 (0.011)
ISO63FX50	ISO63	500 (19.69)	422 (16.61)	95 (3.74)	76 (2.99)	3 (0.12)	0.28 (0.011)
ISO63FX75	ISO63	750 (29.53)	672 (26.46)	95 (3.74)	76 (2.99)	3 (0.12)	0.28 (0.011)
ISO63FX100	ISO63	1000 (39.37)	922 (36.30)	95 (3.74)	76 (2.99)	3 (0.12)	0.28 (0.011)
ISO80FX25	ISO80	250 (9.84)	166 (6.54)	110 (4.33)	89 (3.50)	3 (0.12)	0.28 (0.011)
ISO80FX50	ISO80	500 (19.69)	416 (16.38)	110 (4.33)	89 (3.50)	3 (0.12)	0.28 (0.011)
ISO80FX75	ISO80	750 (29.53)	666 (26.22)	110 (4.33)	89 (3.50)	3 (0.12)	0.28 (0.011)
ISO80FX100	ISO80	1000 (39.37)	916 (36.06)	110 (4.33)	89 (3.50)	3 (0.12)	0.28 (0.011)
ISO100FX25	ISO100	250 (9.84)	181 (7.13)	130 (5.12)	108 (4.25)	3 (0.12)	0.28 (0.011)
ISO100FX50	ISO100	500 (19.69)	431 (16.97)	130 (5.12)	108 (4.25)	3 (0.12)	0.28 (0.011)
ISO100FX75	ISO100	750 (29.53)	681 (26.81)	130 (5.12)	108 (4.25)	3 (0.12)	0.28 (0.011)
ISO100FX100	ISO100	1000 (39.37)	931 (36.65)	130 (5.12)	108 (4.25)	3 (0.12)	0.28 (0.011)
ISO160FX25	ISO160	250 (9.84)	170 (6.69)	180 (7.09)	159 (6.26)	3 (0.12)	0.38 (0.015)
ISO160FX50	ISO160	500 (19.69)	420 (16.54)	180 (7.09)	159 (6.26)	3 (0.12)	0.38 (0.015)
ISO160FX75	ISO160	750 (29.53)	670 (26.38)	180 (7.09)	159 (6.26)	3 (0.12)	0.38 (0.015)
ISO160FX100	ISO160	1000 (39.37)	920 (36.22)	180 (7.09)	159 (6.26)	3 (0.12)	0.38 (0.015)



All measurements are in millimetres (inches in brackets)

CF FLANGES AND FABRICATIONS

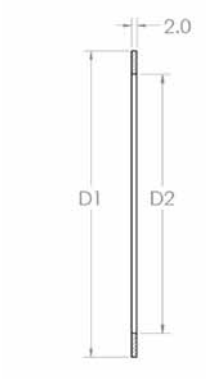
All CF flanges are manufactured from specially selected, high quality stainless steel - 304L (1.4306) or the higher specification 316LN (1.4429). These materials being the accepted standards throughout the UHV vacuum industry. Both stainless steels are low carbon varieties designed to avoid inter-granular corrosion after welding. 316LN has the additional advantages of a lower magnetic permeability, harder knife edge, and high temperature H2 degassing at up to 950°C. Full traceability is available on all materials used. Protective mouldings and suitable packing ensures that the flanges reach the customer in perfect condition for use on UHV equipment. The product range includes blank, bored and rotatable flanges in all of the internationally approved sizes. Other sizes and special flanges are available to order.

The CF series flange utilise the well proven captured copper gasket sealing principle which is now almost universally used in the UHV industry. The seal - an OFHC copper gasket - is held between the knife edges of a pair of CF flanges. On tightening the retaining bolts, the knife edges cut into the gasket and force the copper both axially as well as radially outwards to the flange. The material is thus enclosed and cannot flow, even at high bakeout temperatures. This sealing method has a maximum bakeout temperature of 450°C and is suitable for vacuum applications to 10^{-12} mbar.

CF **COPPER GASKETS** - OFHC COPPER

PART NUMBER	PNEUROP	For flange OD	D1	D2	Pack size
CU16	NW16	34 (1.33)	21 (0.83)	16 (0.63)	10
CU35	NW35	70 (2.75)	48 (1.89)	37 (1.46)	10
CU63	NW63	114 (4.50)	82 (3.23)	63 (2.48)	10
CU100	NW100	152 (6.00)	120 (4.72)	101 (3.98)	10
CU150	NW150	203 (8.00)	171 (6.73)	152 (5.98)	5
CU200	NW200	254 (10.00)	222 (8.74)	203 (7.99)	5
CU250	NW250	304 (12.00)	270 (10.63)	254 (10.00)	5
CU272	NW250	304 (12.00)	272 (10.71)	254 (10.00)	5

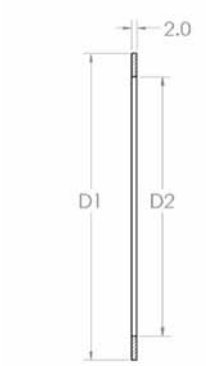
Oxygen free high conductivity (OFHC) copper is a suitable sealing material for bakeable UHV systems because of its good conformity with the thermal expansion coefficient of stainless steel as well as its essentially lower hardness (approx. 85 Brinell).



CF **ANNEALED COPPER GASKETS** - OFHC COPPER

PART NUMBER	PNEUROP	For flange OD	D1	D2	Pack size
CUA16	NW16	34 (1.33)	21 (0.83)	16 (0.63)	5
CUA35	NW35	70 (2.75)	48 (1.89)	37 (1.46)	5
CUA63	NW63	114 (4.50)	82 (3.23)	63 (2.48)	5
CUA100	NW100	152 (6.00)	120 (4.72)	101 (3.98)	5
CUA150	NW150	203 (8.00)	171 (6.73)	152 (5.98)	5
CUA200	NW200	254 (10.00)	222 (8.74)	203 (7.99)	5
CUA250	NW250	304 (12.00)	270 (10.63)	254 (10.00)	5
CUA272	NW250	304 (12.00)	272 (10.71)	254 (10.00)	5

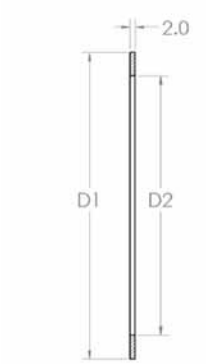
The annealed gaskets are recommended for use on viewports, feedthroughs and ionisation gauge heads with glass to metal seals (Hardness approx. 45 Brinell).



CF **SILVER PLATED COPPER GASKETS** - OFHC COPPER

PART NUMBER	PNEUROP	For flange OD	D1	D2	Pack size
CU16SP	NW16	34 (1.33)	21 (0.83)	16 (0.63)	5
CU35SP	NW35	70 (2.75)	48 (1.89)	37 (1.46)	5
CU63SP	NW63	114 (4.50)	82 (3.23)	63 (2.48)	5
CU100SP	NW100	152 (6.00)	120 (4.72)	101 (3.98)	5
CU150SP	NW150	203 (8.00)	171 (6.73)	152 (5.98)	5
CU200SP	NW200	254 (10.00)	222 (8.74)	203 (7.99)	5
CU250SP	NW250	304 (12.00)	270 (10.63)	254 (10.00)	5
CU272SP	NW250	304 (12.00)	272 (10.71)	254 (10.00)	5

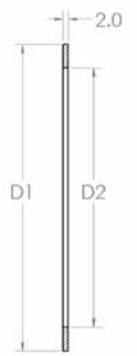
5 -7 Micron Silver Plating prevents oxidation of the parts exposed to atmosphere during baking.



All measurements are in millimetres (inches in brackets)

CF **SILVER PLATED ANNEALED COPPER GASKETS** - OFHC COPPER

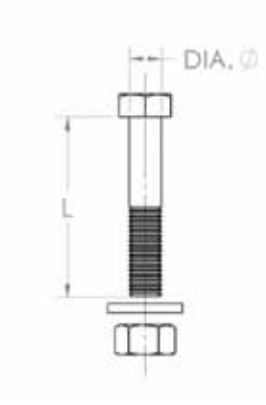
PART NUMBER	PNEUROP	For flange OD	D1	D2	Pack size
CUA16SP	NW16	34 (1.33)	21 (0.83)	16 (0.63)	5
CUA35SP	NW35	70 (2.75)	48 (1.89)	37 (1.46)	5
CUA63SP	NW63	114 (4.50)	82 (3.23)	63 (2.48)	5
CUA100SP	NW100	152 (6.00)	120 (4.72)	101 (3.98)	5
CUA150SP	NW150	203 (8.00)	171 (6.73)	152 (5.98)	5
CUA200SP	NW200	254 (10.00)	222 (8.74)	203 (7.99)	5
CUA250SP	NW250	304 (12.00)	270 (10.63)	254 (10.00)	5
CUA272SP	NW250	304 (12.00)	272 (10.71)	254 (10.00)	5

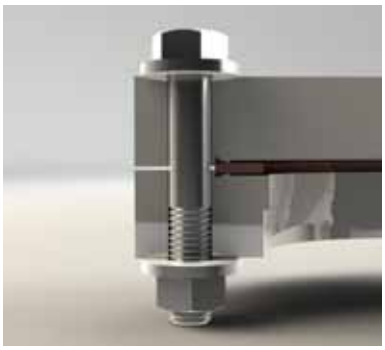


CF **NUT BOLT WASHER SET FOR CF FLANGE** - STAINLESS STEEL

PART NUMBER	PNEUROP	DIA	L	Pack size
NBW420	NW16	M4	20 (0.79)	25
NBW635	NW35	M6	35 (1.38)	25
NBW845	NW63	M8	45 (1.77)	25
NBW850	NW100	M8	50 (1.97)	25
NBW860	NW150	M8	60 (2.36)	25
NBW860	NW200	M8	60 (2.36)	25
NBW1065	NW250	M10	65 (2.56)	35

Silver plated bolts available on request.

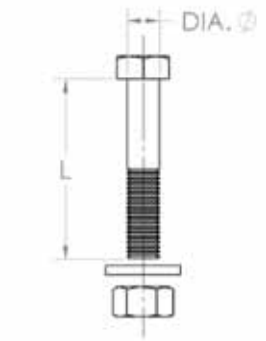


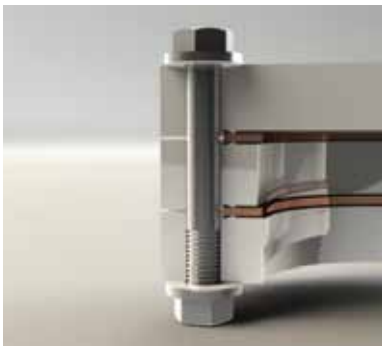


CF **NUT BOLT WASHER SET FOR DOUBLE SIDED CF FLANGE** - STAINLESS STEEL

PART NUMBER	PNEUROP	DIA	L	Pack size
NBW435	NW16	M4	35 (1.38)	25
NBW650	NW35	M6	50 (1.97)	25
NBW860	NW63	M8	60 (2.36)	25
NBW870	NW100	M8	70 (2.76)	25
NBW880	NW150	M8	80 (3.15)	25
NBW890	NW200	M8	90 (3.54)	25
NBW1090	NW250	M10	90 (3.54)	35

Silver plated bolts available on request.

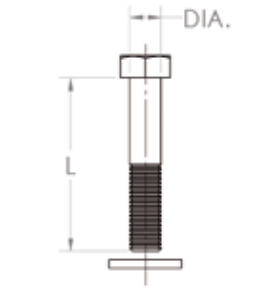




CF **NUT BOLT WASHER SET FOR TAPPED CF FLANGE** - STAINLESS STEEL

PART NUMBER	PNEUROP	DIA	L	Pack size
BW416	NW16	M4	16 (0.63)	25
BW625	NW35	M6	25 (0.98)	25
BW830	NW63	M8	30 (1.18)	25
BW835	NW100	M8	35 (1.38)	25
BW835	NW150	M8	35 (1.38)	25
BW845	NW200	M8	45 (1.77)	25
BW1050	NW250	M10	50 (1.97)	35

Silver plated bolts available on request.



All measurements are in millimetres (inches in brackets)

CF **BLANK OFF KIT OF PARTS** - STAINLESS STEEL

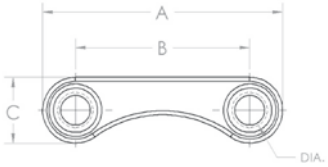
PART NUMBER	PNEUROP
F16-BLANKOFF	NW16
F35-BLANKOFF	NW35
F63-BLANKOFF	NW63
F100-BLANKOFF	NW100
F150-BLANKOFF	NW150
F200-BLANKOFF	NW200
F250-BLANKOFF	NW250
F272-BLANKOFF	NW250

Consist of:
1 x Blank, 1 x Gasket and appropriate quantity of nut, bolts and washers for blanking off ports

CF **PLATE NUT** - STAINLESS STEEL

PART NUMBER	PNEUROP	A	B	c	Dia	Qty
PN16	NW16	20 (0.79)	13 (0.51)	7 (0.28)	M4	25
PN35	NW35	41 (1.61)	29 (1.14)	11 (0.43)	M6	25
PN63	NW63	51 (2.01)	35 (1.38)	12 (0.47)	M8	25
PN100	NW100	44 (1.73)	25 (0.98)	12 (0.47)	M8	25
PN150	NW150	44 (1.73)	28 (1.10)	12 (0.47)	M8	25

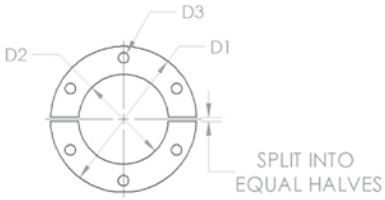
Used where spanner access to back of flange may be impaired.



CF **HORSE SHOE PLATE NUTS** - STAINLESS STEEL

PART NUMBER	PNEUROP	D1	D2	D3
PN16HS	NW16	34 (1.33)	20 (0.79)	M4
PN35HS	NW35	70 (2.75)	43 (1.69)	M6
PN63HS	NW63	114 (4.50)	65 (2.56)	M8
PN100HS	NW100	152 (6.00)	103 (4.06)	M8
PN150HS	NW150	203 (8.00)	154 (6.06)	M8

Used to convert a plain flange into a tapped equivalent.



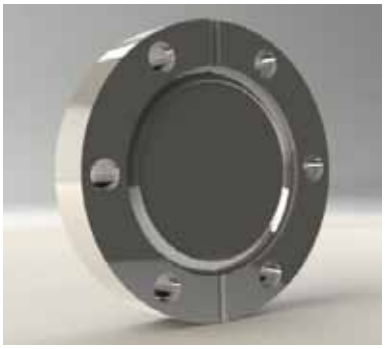
All measurements are in millimetres (inches in brackets)

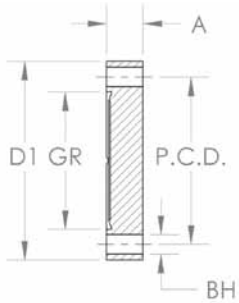
CF **FIXED BLANK FLANGE** - 304L STAINLESS STEEL

Clear bolt holes								Tapped bolt holes	
PART NUMBER	PNEUROP	A	D1	GR	PCD	BH	Bolt Holes	PART NUMBER	Thread Dia
F16	NW16	7.6 (0.30)	34 (1.33)	21 (0.83)	27 (1.06)	4.3 (0.17)	6	F16T	M4
F35	NW35	12.7 (0.50)	70 (2.75)	48 (1.89)	58 (2.28)	6.7 (0.26)	6	F35T	M6
F63	NW63	17.4 (0.69)	114 (4.50)	82 (3.23)	92 (3.62)	8.3 (0.33)	8	F63T	M8
F100	NW100	19.9 (0.78)	152 (6.00)	120 (4.72)	130 (5.12)	8.3 (0.33)	16	F100T	M8
F150	NW150	22.3 (0.88)	203 (8.00)	171 (6.73)	181 (7.13)	8.3 (0.33)	20	F150T	M8
F200	NW200	24.6 (0.97)	254 (10.00)	222 (8.74)	231 (9.09)	8.3 (0.33)	24	F200T	M8
F250	NW250	27.3 (1.07)	304 (12.00)	270 (10.63)	283 (11.14)	10.3 (0.41)	32	F250T	M10
F272	NW250	24.6 (0.97)	304 (12.00)	273 (10.75)	284 (11.18)	8.4 (0.33)	32	F272T	M8

Available in 316L and 316LN on request.

Imperial bolt holes available on request.



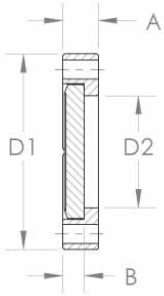


CF **ROTABLE BLANK FLANGE** - 304L STAINLESS STEEL

Clear bolt holes							Tapped bolt holes	
PART NUMBER	PNEUROP	A	B	D1	D2	Bolt Holes	PART NUMBER	Thread Dia
F16R	NW16	7.6 (0.30)	5.85 (0.23)	34 (1.33)	19.3 (0.76)	6	F16RT	M4
F35R	NW35	12.7 (0.50)	7.05 (0.28)	70 (2.75)	41.4 (1.63)	6	F35RT	M6
F63R	NW63	17.4 (0.69)	12.15 (0.48)	114 (4.50)	68.0 (2.68)	8	F63RT	M8
F100R	NW100	19.9 (0.78)	13.75 (0.54)	152 (6.00)	104.9 (4.13)	16	F100RT	M8
F150R	NW150	22.3 (0.88)	15.25 (0.6)	203 (8.00)	155.7 (6.13)	20	F150RT	M8
F200R	NW200	24.6 (0.97)	16.55 (0.65)	254 (10.00)	206.4 (8.13)	24	F200RT	M8
F250R	NW250	27.3 (1.07)	19.05 (0.75)	304 (12.00)	259.5 (10.22)	32	F250RT	M10
F272R	NW250	24.6 (0.97)	18.00 (0.71)	304 (12.00)	250.7 (9.87)	32	F272RT	M8

Available in 316L and 316LN on request.

Imperial bolt holes available on request.



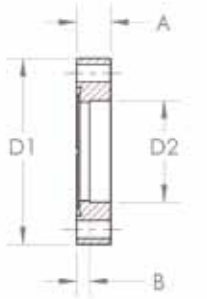
All measurements are in millimetres (inches in brackets)

CF **FIXED BORED FLANGE** - 304L STAINLESS STEEL

Clear bolt holes							Tapped bolt holes	
PART NUMBER	PNEUROP	A	B	D1	D2	Bolt Holes	PART NUMBER	Thread Dia
F16B7	NW16	7.7 (0.3)	-	34 (1.33)	6.4 (0.25)	6	F16B7T	M4
F16B12	NW16	7.7 (0.3)	-	34 (1.33)	12.7 (0.5)	6	F16B12T	M4
F16B14	NW16	7.7 (0.3)	4.8 (0.19)	34 (1.33)	14.4 (0.57)	6	F16B14T	M4
F16B19	NW16	7.7 (0.3)	4.8 (0.19)	34 (1.33)	19.1 (0.75)	6	F16B19T	M4
F35B14	NW35	12.7 (0.5)	4.8 (0.19)	70 (2.75)	14.4 (0.57)	6	F35B14T	M6
F35B25	NW35	12.7 (0.5)	4.8 (0.19)	70 (2.75)	25.5 (1.00)	6	F35B25T	M6
F35B38	NW35	12.7 (0.5)	4.8 (0.19)	70 (2.75)	38.2 (1.5)	6	F35B38T	M6
F35B41	NW35	12.7 (0.5)	4.8 (0.19)	70 (2.75)	41.3 (1.63)	6	F35B41T	M6
F63B51	NW63	17.4 (0.69)	7.9 (0.31)	114 (4.50)	51.2 (2.02)	8	F63B51T	M8
F63B63	NW63	17.4 (0.69)	7.9 (0.31)	114 (4.50)	63.6 (2.50)	8	F63B63T	M8
F100B	NW100	19.9 (0.78)	9.5 (0.37)	152 (6.00)	101.9 (4.01)	16	F100BT	M8
F150B	NW150	22.2 (0.87)	9.5 (0.37)	203 (8.00)	152.6 (6.01)	20	F150BT	M8
F200B	NW200	24.6 (0.97)	9.5 (0.37)	254 (10.00)	203.5 (8.01)	24	F200BT	M8
F250B	NW250	27.3 (1.07)	9.5 (0.37)	304 (12.00)	254.4 (10.02)	32	F250BT	M10
F272B	NW250	27.3 (1.07)	9.5 (0.37)	304 (12.00)	254.4 (10.02)	32	F272BT	M8

Other bore sizes, 316L and 316LN available on request.

Imperial bolt holes available on request.



CF **ROTATABLE BORED FLANGE** - 304L STAINLESS STEEL

Clear bolt holes							Tapped bolt holes	
PART NUMBER	PNEUROP	A	B	D1	D2	Bolt Holes	PART NUMBER	Thread Dia
F16R7	NW16	7.6 (0.30)	-	34 (1.33)	6.4 (0.25)	6	F16R7T	M4
F16R12	NW16	7.6 (0.30)	-	34 (1.33)	12.7 (0.50)	6	F16R12T	M4
F16R14	NW16	7.6 (0.30)	4.8 (0.19)	34 (1.33)	14.4 (0.57)	6	F16R14T	M4
F16R19	NW16	7.6 (0.30)	4.25 (0.17)	34 (1.33)	19.1 (0.75)	6	F16R19T	M4
F35R14	NW35	12.7 (0.50)	4.8 (0.19)	70 (2.75)	14.4 (0.57)	6	F35R14T	M6
F35R25	NW35	12.7 (0.50)	4.8 (0.19)	70 (2.75)	25.5 (1.00)	6	F35R25T	M6
F35R38	NW35	12.7 (0.50)	4.8 (0.19)	70 (2.75)	38.2 (1.50)	6	F35R38T	M6
F35R41	NW35	12.7 (0.50)	4.8 (0.19)	70 (2.75)	41.3 (1.63)	6	F35R41T	M6
F63R51	NW63	17.4 (0.69)	7.9 (0.31)	114 (4.50)	51.2 (2.02)	8	F63R51T	M8
F63R63	NW63	17.4 (0.69)	7.9 (0.31)	114 (4.50)	63.6 (2.50)	8	F63R63T	M8
F100RB	NW100	19.9 (0.78)	8.95 (0.35)	152 (6.00)	101.9 (4.01)	16	F100RBT	M8
F150RB	NW150	22.2 (0.87)	8.95 (0.35)	203 (8.00)	152.6 (6.01)	20	F150RBT	M8
F200RB	NW200	24.6 (0.97)	8.95 (0.35)	254 (10.00)	203.5 (8.01)	24	F200RBT	M8
F250RB	NW250	27.3 (1.07)	10.1 (0.40)	304 (12.00)	254.4 (10.02)	32	F250RBT	M10
F272RB	NW250	27.3 (1.07)	11.35 (0.45)	304 (12.00)	254.4 (10.02)	32	F272RBT	M8

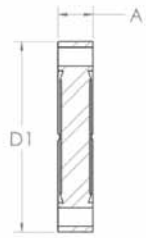
Other bore sizes, 316L and 316LN available on request.

Imperial bolt holes available on request.

All measurements are in millimetres (inches in brackets)

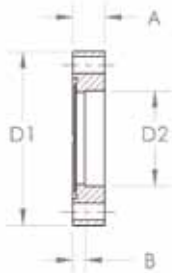
CF **DOUBLE SIDED BLANK FLANGE** - 304L STAINLESS STEEL

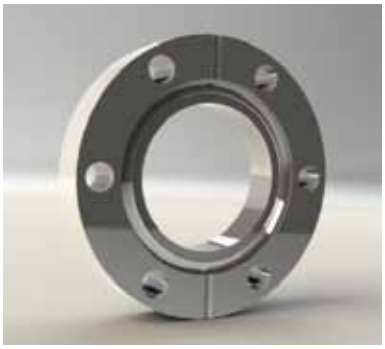
PART NUMBER	PNEUROP	A	D1
F16DB	NW16	7.6 (0.30)	34 (1.33)
F35DB	NW35	12.7 (0.50)	70 (2.75)
F63DB	NW63	17.4 (0.69)	114 (4.50)
F100DB	NW100	19.8 (0.78)	152 (6.00)
F150DB	NW150	22.2 (0.87)	203 (8.00)
F200DB	NW200	24.6 (0.97)	254 (10.00)



CF **DOUBLE SIDED BORED FLANGE** - 304L STAINLESS STEEL

PART NUMBER	PNEUROP	A	D1	D2
F16D14	NW16	7.6 (0.30)	34 (1.33)	14 (0.55)
F35D38	NW35	12.7 (0.50)	70 (2.75)	38 (1.50)
F63D63	NW63	17.4 (0.69)	114 (4.50)	63 (2.48)
F100D100	NW100	19.8 (0.78)	152 (6.00)	100 (3.94)
F150D150	NW150	22.2 (0.87)	203 (8.00)	150 (5.91)
F200D200	NW200	24.6 (0.97)	254 (10.00)	200 (7.87)

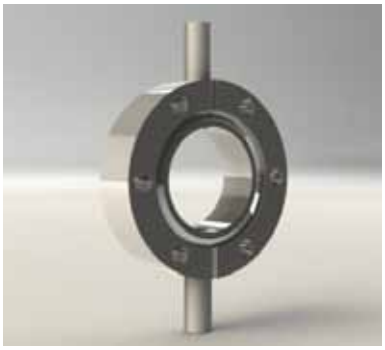


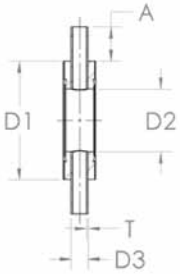


CF **DOUBLE SIDED BLANK FLANGE WITH RADIAL PORTS** - 304L STAINLESS STEEL

PART NUMBER	PNEUROP	A	D1	D2	D3	T	No. of ports	Port Termination
F35DR1	NW35	20 (0.79)	70 (2.75)	37 (1.46)	10 (0.39)	1 (0.04)	1	Plain tube
F35DR2	NW35	20 (0.79)	70 (2.75)	37 (1.46)	10 (0.39)	1 (0.04)	2 (@180°)	Plain tube
F35DR1KF	NW35	20 (0.79)	70 (2.75)	37 (1.46)	10 (0.39)	1 (0.04)	1	KF10
F35DR2KF	NW35	20 (0.79)	70 (2.75)	37 (1.46)	10 (0.39)	1 (0.04)	2 (@180°)	KF10
F35DR1CF	NW35	20 (0.79)	70 (2.75)	37 (1.46)	10 (0.39)	1 (0.04)	1	F16
F35DR2CF	NW35	20 (0.79)	70 (2.75)	37 (1.46)	10 (0.39)	1 (0.04)	2 (@180°)	F16

Baffle plates, accessories and other sizes available on request.

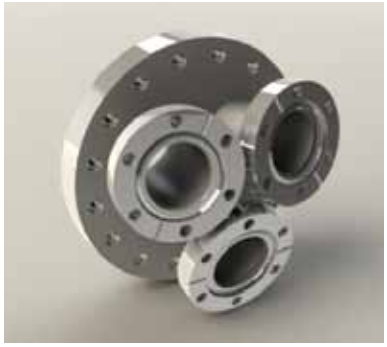


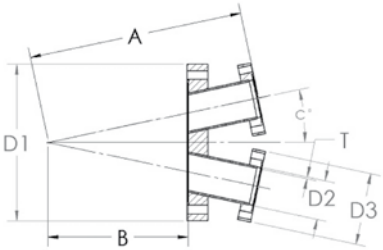


All measurements are in millimetres (inches in brackets)

CF **CLUSTER FLANGE** - 304L STAINLESS STEEL

PART NUMBER	PNEUROP	No. of ports	A	B	C	DI	D2	D3	T
CF3P	NW35	3	208 (8.19)	135 (5.31)	11.9°	152 (6.00)	38 (1.50)	70 (2.75)	1.6 (0.06)
CF4P	NW35	4	250 (9.84)	167 (6.57)	13.0°	203 (8.00)	38 (1.50)	70 (2.75)	1.6 (0.06)

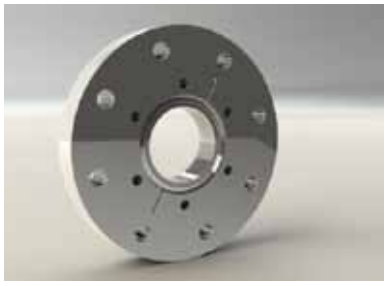


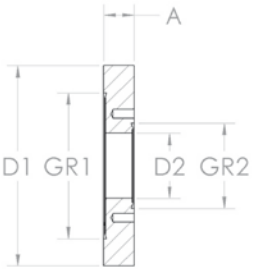


CF **ZERO LENGTH REDUCER FLANGE** - 304L STAINLESS STEEL

PART NUMBER	PNEUROP	A	D1	D2	GR1	GR2
ZL3516	NW16/35	12.7 (0.5)	70 (2.75)	13.2 (0.52)	48 (1.89)	21 (0.83)
ZL6316	NW16/63	17.4 (0.69)	114 (4.50)	13.2 (0.52)	82 (3.23)	21 (0.83)
ZL6335	NW35/63	17.4 (0.69)	114 (4.50)	36.9 (1.45)	82 (3.23)	48 (1.89)
ZL1035	NW35/100	19.9 (0.78	152 (6.00)	36.9 (1.45)	120 (4.72)	48 (1.89)
ZL1063	NW63/100	19.9 (0.78	152 (6.00)	61.2 (2.41)	120 (4.72)	82 (3.23)
ZL1535	NW35/150	22.2 (0.87)	203 (8.00)	36.9 (1.45)	171 (6.73)	48 (1.89)
ZL1563	NW63/150	22.2 (0.87)	203 (8.00)	61.2 (2.41)	171 (6.73)	82 (3.23)
ZL1510	NW100/150	22.2 (0.87)	203 (8.00)	99.4 (3.91)	171 (6.73)	120 (4.72)
ZL2035	NW35/200	24.6 (0.97)	254 (10.00)	36.9 (1.45)	222 (8.74)	48 (1.89)
ZL2063	NW63/200	24.6 (0.97)	254 (10.00)	61.2 (2.41)	222 (8.74)	82 (3.23)
ZL2010	NW100/200	24.6 (0.97)	254 (10.00)	99.4 (3.91)	222 (8.74)	120 (4.72)
ZL2015	NW150/200	24.6 (0.97)	254 (10.00)	149.7 (5.89)	222 (8.74)	171 (6.73)
ZL2535	NW35/250	27.3 (1.07)	304 (12.00)	36.9 (1.45)	270 (10.63)	48 (1.89)
ZL2563	NW63/250	27.3 (1.07)	304 (12.00)	61.2 (2.41)	270 (10.63)	82 (3.23)
ZL2510	NW100/250	27.3 (1.07)	304 (12.00)	99.4 (3.91)	270 (10.63)	120 (4.72)
ZL2515	NW150/250	27.3 (1.07)	304 (12.00)	149.7 (5.89)	270 (10.63)	171 (6.73)
ZL2520	NW200/250	27.3 (1.07)	304 (12.00)	200.4 (7.89)	270 (10.63)	222 (8.74)

Available in 316L and 316LN on request.
Metric tap on smaller flange. Imperial available on request.



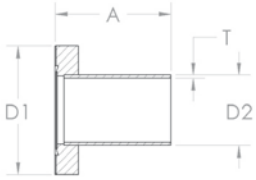


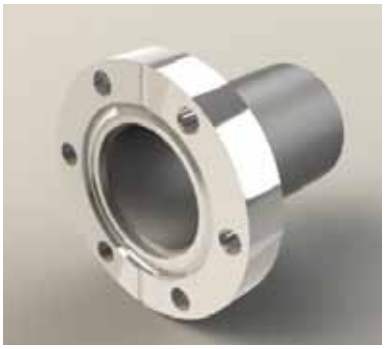
All measurements are in millimetres (inches in brackets)

CF **TUBULATION FIXED** - 304L STAINLESS STEEL

PART NUMBER	PNEUROP	D1	A	D2	T
TU16	NW16	34 (1.33)	38 (1.50)	19 (0.75)	1.6 (0.06)
TU35	NW35	70 (2.75)	63 (2.48)	38 (1.50)	1.6 (0.06)
TU63	NW63	114 (4.50)	105 (4.13)	64 (2.50)	1.6 (0.06)
TU100	NW100	152 (6.00)	135 (5.31)	102 (4.00)	1.6 (0.06)
TU150	NW150	203 (8.00)	167 (6.57)	152 (6.00)	2.0 (0.08)
TU200	NW200	254 (10.00)	167 (6.57)	203 (8.00)	2.0 (0.08)

Tapped flanges, 316L and 316LN available on request.

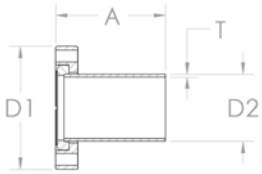


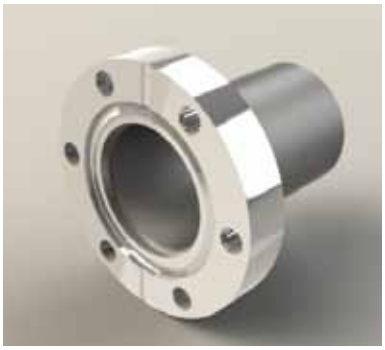


CF **TUBULATION ROTATABLE** - 304L STAINLESS STEEL

PART NUMBER	PNEUROP	D1	A	D2	T
TU16R	NW16	34 (1.33)	38 (1.50)	19 (0.75)	1.6 (0.06)
TU35R	NW35	70 (2.75)	63 (2.48)	38 (1.50)	1.6 (0.06)
TU63R	NW63	114 (4.50)	105 (4.13)	64 (2.50)	1.6 (0.06)
TU100R	NW100	152 (6.00)	135 (5.31)	102 (4.00)	1.6 (0.06)
TU150R	NW150	203 (8.00)	167 (6.57)	152 (6.00)	2.0 (0.08)
TU200R	NW200	254 (10.00)	167 (6.57)	203 (8.00)	2.0 (0.08)

Tapped flanges, 316L and 316LN available on request.

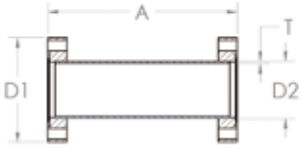




CF **STRAIGHT CONNECTOR** - FIXED - 304L STAINLESS STEEL

PART NUMBER	PNEUROP	A	D1	D2	T
SC16	NW16	76 (2.99)	34 (1.33)	19 (0.75)	1.6 (0.06)
SC35	NW35	126 (4.96)	70 (2.75)	38 (1.50)	1.6 (0.06)
SC63	NW63	210 (8.27)	114 (4.50)	64 (2.50)	1.6 (0.06)
SC100	NW100	270 (10.63)	152 (6.00)	102 (4.00)	1.6 (0.06)
SC150	NW150	334 (13.15)	203 (8.00)	152 (6.00)	2.0 (0.08)

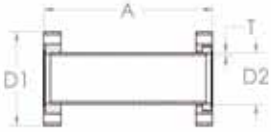
Bolt holes in-line, straddled available on request.



CF **STRAIGHT CONNECTOR ROTATABLE** - 304L STAINLESS STEEL

PART NUMBER	PNEUROP	A	D1	D2	T
SC16R	NW16	76 (2.99)	34 (1.33)	19 (0.75)	1.6 (0.06)
SC35R	NW35	126 (4.96)	70 (2.75)	38 (1.50)	1.6 (0.06)
SC63R	NW63	210 (8.27)	114 (4.50)	64 (2.50)	1.6 (0.06)
SC100R	NW100	270 (10.63)	152 (6.00)	102 (4.00)	1.6 (0.06)
SC150R	NW150	334 (13.15)	203 (8.00)	152 (6.00)	2.0 (0.08)

Special lengths and diameters available on request.

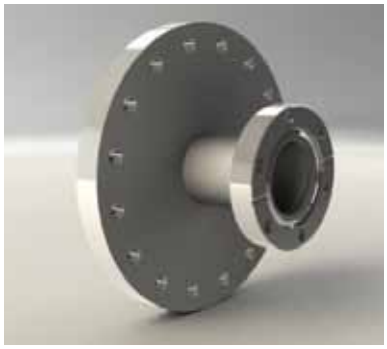


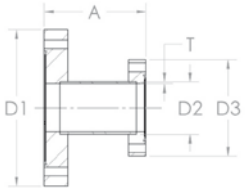
All measurements are in millimetres (inches in brackets)

CF **TUBULATED REDUCER FIXED** - 304L STAINLESS STEEL

PART NUMBER	PNEUROP	A	D1	D2	D3	T
TA3516	NW16/35	70 (2.76)	70 (2.75)	19 (0.75)	34 (1.33)	1.6 (0.06)
TA6316	NW16/63	70 (2.76)	114 (4.50)	19 (0.75)	34 (1.33)	1.6 (0.06)
TA6335	NW35/63	70 (2.76)	114 (4.50)	38 (1.50)	70 (2.75)	1.6 (0.06)
TA1035	NW35/100	70 (2.76)	152 (6.00)	38 (1.50)	70 (2.75)	1.6 (0.06)
TA1063	NW63/100	70 (2.76)	152 (6.00)	63.5 (2.50)	114 (4.50)	1.6 (0.06)
TA1535	NW35/150	70 (2.76)	203 (8.00)	38 (1.50)	70 (2.75)	1.6 (0.06)
TA1563	NW63/150	127 (5.00)	203 (8.00)	63.5 (2.50)	114 (4.50)	1.6 (0.06)
TA1510	NW100/150	127 (5.00)	203 (8.00)	101.6 (4.00)	152 (6.00)	1.6 (0.06)
TA2063	NW63/200	127 (5.00)	254 (10.00)	63.5 (2.50)	114 (4.50)	1.6 (0.06)
TA2010	NW100/200	127 (5.00)	254 (10.00)	101.6 (4.00)	152 (6.00)	1.6 (0.06)
TA2015	NW150/200	127 (5.00)	254 (10.00)	152.4 (6.00)	203 (8.00)	2.0 (0.08)

Please note that certain flange combinations give you both in-line & straddled bolt holes on a single adaptor

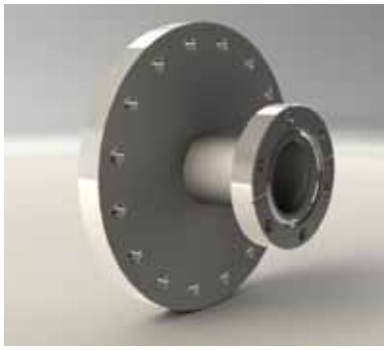


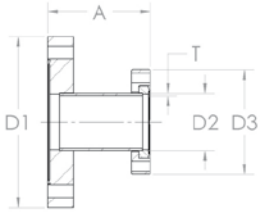


CF **TUBULATED REDUCER ROTATABLE** - 304L STAINLESS STEEL

PART NUMBER	PNEUROP	A	D1	D2	D3	T
TA3516R	NW16/35	70 (2.76)	70 (2.75)	19 (0.75)	34 (1.33)	1.6 (0.06)
TA6316R	NW16/63	70 (2.76)	114 (4.50)	19 (0.75)	34 (1.33)	1.6 (0.06)
TA6335R	NW35/63	70 (2.76)	114 (4.50)	38 (1.50)	70 (2.75)	1.6 (0.06)
TA1035R	NW35/100	70 (2.76)	152 (6.00)	38 (1.50)	70 (2.75)	1.6 (0.06)
TA1063R	NW63/100	70 (2.76)	152 (6.00)	63.5 (2.50)	114 (4.50)	1.6 (0.06)
TA1535R	NW35/150	70 (2.76)	203 (8.00)	38 (1.50)	70 (2.75)	1.6 (0.06)
TA1563R	NW63/150	127 (5.00)	203 (8.00)	63.5 (2.50)	114 (4.50)	1.6 (0.06)
TA1510R	NW100/150	127 (5.00)	203 (8.00)	101.6 (4.00)	152 (6.00)	1.6 (0.06)
TA2063R	NW63/200	127 (5.00)	254 (10.00)	63.5 (2.50)	114 (4.50)	1.6 (0.06)
TA2010R	NW100/200	127 (5.00)	254 (10.00)	101.6 (4.00)	152 (6.00)	1.6 (0.06)
TA2015R	NW150/200	127 (5.00)	254 (10.00)	152.4 (6.00)	203 (8.00)	2.0 (0.08)

Special lengths and diameter available on request



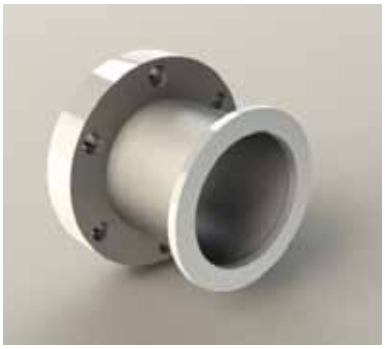


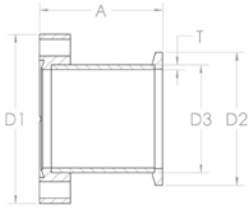
All measurements are in millimetres (inches in brackets)

CF TO NW **ADAPTOR** - STAINLESS STEEL

PART NUMBER	PNEUROP	A	D1	D2	D3	T
KA1616	CF16/NW16	36 (1.42)	34 (1.33)	30 (1.18)	20.0 (0.79)	2 (0.08)
KA3516	CF35/NW16	36 (1.42)	70 (2.75)	30 (1.18)	20.0 (0.79)	2 (0.08)
KA3525	CF35/NW25	36 (1.42)	70 (2.75)	40 (1.57)	28.0 (1.10)	2 (0.08)
KA3540	CF35/NW40	50 (1.97)	70 (2.75)	55 (2.17)	44.5 (1.75)	2 (0.08)
KA6325	CF63/NW25	50 (1.97)	114 (4.50)	40 (1.57)	28.0 (1.10)	2 (0.08)
KA6340	CF63/NW40	50 (1.97)	114 (4.50)	55 (2.17)	44.5 (1.75)	2 (0.08)
KA6350	CF63/NW50	50 (1.97)	114 (4.50)	75 (2.95)	57.0 (2.24)	3 (0.12)
KA1025	CF100/NW25	50 (1.97)	152 (6.00)	40 (1.57)	28.0 (1.10)	2 (0.08)
KA1040	CF100/NW40	50 (1.97)	152 (6.00)	55 (2.17)	44.5 (1.75)	2 (0.08)
KA1050	CF100/NW50	50 (1.97)	152 (6.00)	75 (2.95)	57.0 (2.24)	3 (0.12)
KA1525	CF150/NW25	70 (2.76)	203 (8.00)	40 (1.57)	28.0 (1.10)	2 (0.08)
KA1540	CF150/NW40	70 (2.76)	203 (8.00)	55 (2.17)	44.5 (1.75)	2 (0.08)
KA1550	CF150/NW50	70 (2.76)	203 (8.00)	75 (2.95)	57.0 (2.24)	3 (0.12)

Special lengths and diameter available on request

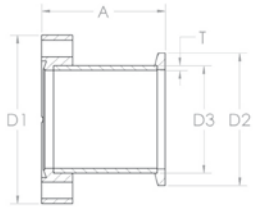




CF TO ISO **ADAPTOR** - STAINLESS STEEL

PART NUMBER	PNEUROP	A	D1	D2	D3	T
SA6363	ISO63/CF63	90 (3.54)	114 (4.50)	95 (3.74)	63.5 (2.50)	1.6 (0.06)
SA1063	ISO63/CF100	90 (3.54)	152 (6.00)	95 (3.74)	76.0 (2.99)	3.0 (0.12)
SA1010	ISO100/CF100	90 (3.54)	152 (6.00)	130 (5.12)	108.0 (4.25)	3.0 (0.12)
SA1016	ISO160/CF100	90 (3.54)	152 (6.00)	180 (7.09)	101.6 (4.00)	1.6 (0.06)
SA1510	ISO100/CF150	90 (3.54)	203 (8.00)	130 (5.12)	108.0 (4.25)	3.0 (0.12)
SA1516	ISO160/CF150	90 (3.54)	203 (8.00)	180 (7.09)	159.0 (6.26)	3.0 (0.12)

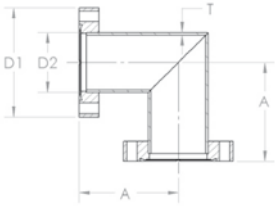
Special lengths and diameter available on request



CF 90 **DEGREE MITRED ELBOW FIXED** - 304L STAINLESS STEEL

PART NUMBER	PNEUROP	A	D1	D2	T
EL16	NW16	38 (1.50)	34 (1.33)	19 (0.75)	1.6 (0.06)
EL35	NW35	63 (2.48)	70 (2.75)	38 (1.50)	1.6 (0.06)
EL63	NW63	105 (4.13)	114 (4.50)	64 (2.50)	1.6 (0.06)
EL100	NW100	135 (5.31)	152 (6.00)	102 (4.00)	1.6 (0.06)
EL150	NW150	167 (6.57)	203 (8.00)	152 (6.00)	2.0 (0.08)
EL200	NW200	203 (7.99)	254 (10.00)	203 (8.00)	2.0 (0.08)

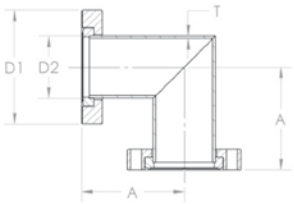
Bolt holes in-line, straddled available on request



All measurements are in millimetres (inches in brackets)

CF 90 **DEGREE MITRED ELBOW ROTATABLE** - 304L STAINLESS STEEL

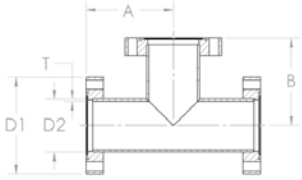
PART NUMBER	PNEUROP	A	D1	D2	T
EL16R	NW16	38 (1.50)	34 (1.33)	19 (0.75)	1.6 (0.06)
EL35R	NW35	63 (2.48)	70 (2.75)	38 (1.50)	1.6 (0.06)
EL63R	NW63	105 (4.13)	114 (4.50)	64 (2.50)	1.6 (0.06)
EL100R	NW100	135 (5.31)	152 (6.00)	102 (4.00)	1.6 (0.06)
EL150R	NW150	167 (6.57)	203 (8.00)	152 (6.00)	2.0 (0.08)
EL200R	NW200	203 (7.99)	254 (10.00)	203 (8.00)	2.0 (0.08)



CF **TEE FIXED** - 304L STAINLESS STEEL

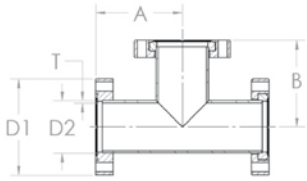
PART NUMBER	PNEUROP	A	B	D1	D2	T
TE16	NW16	38 (1.50)	38 (1.50)	34 (1.33)	19 (0.75)	1.6 (0.06)
TE35	NW35	63 (2.48)	63 (2.48)	70 (2.75)	38 (1.50)	1.6 (0.06)
TE63	NW63	105 (4.13)	105 (4.13)	114 (4.50)	64 (2.50)	1.6 (0.06)
TE100	NW100	135 (5.31)	135 (5.31)	152 (6.00)	102 (4.00)	1.6 (0.06)
TE150	NW150	167 (6.57)	167 (6.57)	203 (8.00)	152 (6.00)	2.0 (0.08)
TE200	NW200	203 (7.99)	203 (7.99)	254 (10.00)	203 (8.00)	2.0 (0.08)

Bolt holes in-line, straddled available on request



CF **TEE ROTATABLE** - 304L STAINLESS STEEL

PART NUMBER	PNEUROP	A	B	D1	D2	T
TE16R	NW16	38 (1.50)	38 (1.50)	34 (1.33)	19 (0.75)	1.6 (0.06)
TE35R	NW35	63 (2.48)	63 (2.48)	70 (2.75)	38 (1.50)	1.6 (0.06)
TE63R	NW63	105 (4.13)	105 (4.13)	114 (4.50)	64 (2.50)	1.6 (0.06)
TE100R	NW100	135 (5.31)	135 (5.31)	152 (6.00)	102 (4.00)	1.6 (0.06)
TE150R	NW150	167 (6.57)	167 (6.57)	203 (8.00)	152 (6.00)	2.0 (0.08)
TE200R	NW200	203 (7.99)	203 (7.99)	254 (10.00)	203 (8.00)	2.0 (0.08)

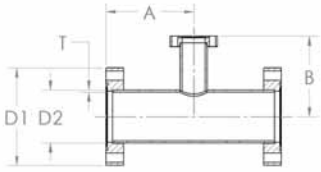


All measurements are in millimetres (inches in brackets)

CF **UNEQUAL TEE FIXED** - 304L STAINLESS STEEL

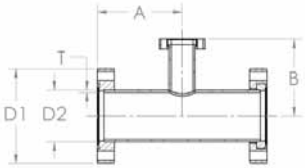
PART NUMBER	PNEUROP	A	B	D1	D2	T
UTE3516	NW35/16	63 (2.48)	60 (2.36)	70 (2.75)	38 (1.50)	1.6 (0.06)
UTE6316	NW63/16	105 (4.13)	77 (3.03)	114 (4.50)	64 (2.50)	1.6 (0.06)
UTE6335	NW63/35	105 (4.13)	77 (3.03)	114 (4.50)	64 (2.50)	1.6 (0.06)
UTE1016	NW100/16	135 (5.31)	95 (3.74)	152 (6.00)	102 (4.00)	1.6 (0.06)
UTE1035	NW100/35	135 (5.31)	95 (3.74)	152 (6.00)	102 (4.00)	1.6 (0.06)
UTE1063	NW100/63	135 (5.31)	95 (3.74)	152 (6.00)	102 (4.00)	1.6 (0.06)
UTE1516	NW150/16	167 (6.57)	120 (4.72)	203 (8.00)	152 (6.00)	2.0 (0.08)
UTE1535	NW150/35	167 (6.57)	120 (4.72)	203 (8.00)	152 (6.00)	2.0 (0.08)
UTE1563	NW150/63	167 (6.57)	120 (4.72)	203 (8.00)	152 (6.00)	2.0 (0.08)
UTE1510	NW150/100	167 (6.57)	120 (4.72)	203 (8.00)	152 (6.00)	2.0 (0.08)

Bolt holes in-line, straddled available on request



CF **UNEQUAL TEE ROTATABLE** - 304L STAINLESS STEEL

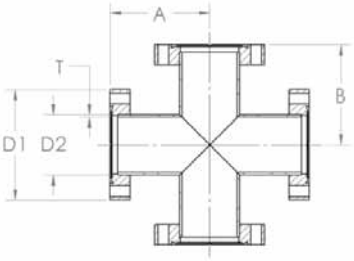
PART NUMBER	PNEUROP	A	B	D1	D2	T
UTE3516R	NW35/16	63 (2.48)	60 (2.36)	70 (2.75)	38 (1.50)	1.6 (0.06)
UTE6316R	NW63/16	105 (4.13)	77 (3.03)	114 (4.50)	64 (2.50)	1.6 (0.06)
UTE6335R	NW63/35	105 (4.13)	77 (3.03)	114 (4.50)	64 (2.50)	1.6 (0.06)
UTE1016R	NW100/16	135 (5.31)	95 (3.74)	152 (6.00)	102 (4.00)	1.6 (0.06)
UTE1035R	NW100/35	135 (5.31)	95 (3.74)	152 (6.00)	102 (4.00)	1.6 (0.06)
UTE1063R	NW100/63	135 (5.31)	95 (3.74)	152 (6.00)	102 (4.00)	1.6 (0.06)
UTE1516R	NW150/16	167 (6.57)	120 (4.72)	203 (8.00)	152 (6.00)	2.0 (0.08)
UTE1535R	NW150/35	167 (6.57)	120 (4.72)	203 (8.00)	152 (6.00)	2.0 (0.08)
UTE1563R	NW150/63	167 (6.57)	120 (4.72)	203 (8.00)	152 (6.00)	2.0 (0.08)
UTE1510R	NW150/100	167 (6.57)	120 (4.72)	203 (8.00)	152 (6.00)	2.0 (0.08)



CF **4-WAY CROSS FIXED** - 304L STAINLESS STEEL

PART NUMBER	PNEUROP	A	B	D1	D2	T
X16	NW16	38 (1.50)	38 (1.50)	34 (1.33)	19 (0.75)	1.6 (0.06)
X35	NW35	63 (2.48)	63 (2.48)	70 (2.75)	38 (1.50)	1.6 (0.06)
X63	NW63	105 (4.13)	105 (4.13)	114 (4.50)	64 (2.50)	1.6 (0.06)
X100	NW100	135 (5.31)	135 (5.31)	152 (6.00)	102 (4.00)	1.6 (0.06)
X150	NW150	167 (6.57)	167 (6.57)	203 (8.00)	152 (6.00)	2.0 (0.08)
X200	NW200	203 (7.99)	203 (7.99)	254 (10.00)	203 (8.00)	2.0 (0.08)

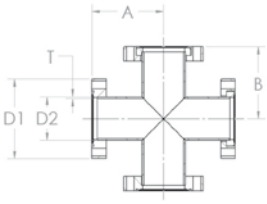
Bolt holes in-line, straddled available on request



All measurements are in millimetres (inches in brackets)

CF **4-WAY CROSS ROTATABLE** - 304L STAINLESS STEEL

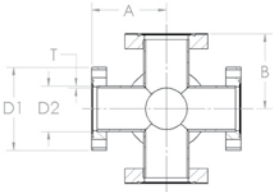
PART NUMBER	PNEUROP	A	B	D1	D2	T
X16R	NW16	38 (1.50)	38 (1.50)	34 (1.33)	19 (0.75)	1.6 (0.06)
X35R	NW35	63 (2.48)	63 (2.48)	70 (2.75)	38 (1.50)	1.6 (0.06)
X63R	NW63	105 (4.13)	105 (4.13)	114 (4.50)	64 (2.50)	1.6 (0.06)
X100R	NW100	135 (5.31)	135 (5.31)	152 (6.00)	102 (4.00)	1.6 (0.06)
X150R	NW150	167 (6.57)	167 (6.57)	203 (8.00)	152 (6.00)	2.0 (0.08)
X200R	NW200	203 (7.99)	203 (7.99)	254 (10.00)	203 (8.00)	2.0 (0.08)



CF **5-WAY CROSS FIXED** - 304L STAINLESS STEEL

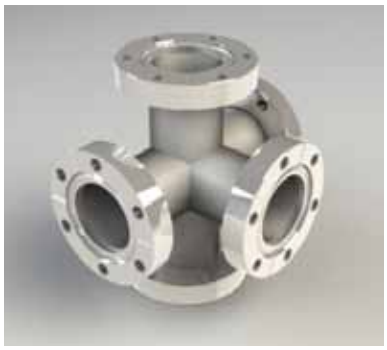
PART NUMBER	PNEUROP	A	B	D1	D2	T
FWX16	NW16	38 (1.50)	38 (1.50)	34 (1.33)	19 (0.75)	1.6 (0.06)
FWX35	NW35	63 (2.48)	63 (2.48)	70 (2.75)	38 (1.50)	1.6 (0.06)
FWX63	NW63	105 (4.13)	105 (4.13)	114 (4.50)	64 (2.50)	1.6 (0.06)
FWX100	NW100	135 (5.31)	135 (5.31)	152 (6.00)	102 (4.00)	1.6 (0.06)
FWX150	NW150	167 (6.57)	167 (6.57)	203 (8.00)	152 (6.00)	2.0 (0.08)
FWX200	NW200	203 (7.99)	203 (7.99)	254 (10.00)	203 (8.00)	2.0 (0.08)

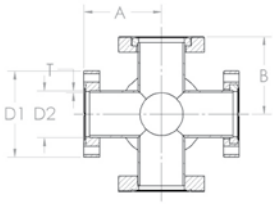
Bolt holes in-line, straddled available on request



CF **5-WAY CROSS ROTATABLE** - 304L STAINLESS STEEL

PART NUMBER	PNEUROP	A	B	D1	D2	T
FWX16R	NW16	38 (1.50)	38 (1.50)	34 (1.33)	19 (0.75)	1.6 (0.06)
FWX35R	NW35	63 (2.48)	63 (2.48)	70 (2.75)	38 (1.50)	1.6 (0.06)
FWX63R	NW63	105 (4.13)	105 (4.13)	114 (4.50)	64 (2.50)	1.6 (0.06)
FWX100R	NW100	135 (5.31)	135 (5.31)	152 (6.00)	102 (4.00)	1.6 (0.06)
FWX150R	NW150	167 (6.57)	167 (6.57)	203 (8.00)	152 (6.00)	2.0 (0.08)
FWX200R	NW200	203 (7.99)	203 (7.99)	254 (10.00)	203 (8.00)	2.0 (0.08)



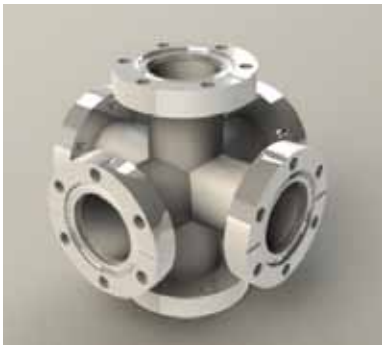


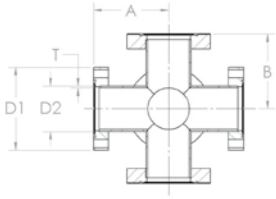
All measurements are in millimetres (inches in brackets)

CF **6-WAY CROSS FIXED** - 304L STAINLESS STEEL

PART NUMBER	PNEUROP	A	B	D1	D2	T
XX16	NW16	38 (1.50)	38 (1.50)	34 (1.33)	19 (0.75)	1.6 (0.06)
XX35	NW35	63 (2.48)	63 (2.48)	70 (2.75)	38 (1.50)	1.6 (0.06)
XX63	NW63	105 (4.13)	105 (4.13)	114 (4.50)	64 (2.50)	1.6 (0.06)
XX100	NW100	135 (5.31)	135 (5.31)	152 (6.00)	102 (4.00)	1.6 (0.06)
XX150	NW150	167 (6.57)	167 (6.57)	203 (8.00)	152 (6.00)	2.0 (0.08)
XX200	NW200	203 (7.99)	203 (7.99)	254 (10.00)	203 (8.00)	2.0 (0.08)

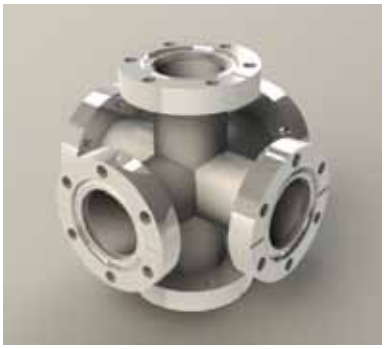
Bolt holes in-line, straddled available on request

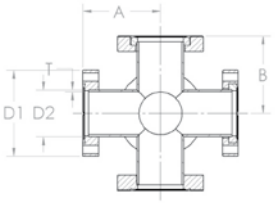




CF **6-WAY CROSS ROTATABLE** - 304L STAINLESS STEEL

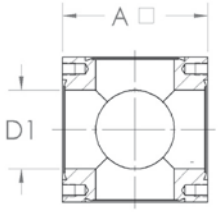
PART NUMBER	PNEUROP	A	B	D1	D2	T
XX16R	NW16	38 (1.50)	38 (1.50)	34 (1.33)	19 (0.75)	1.6 (0.06)
XX35R	NW35	63 (2.48)	63 (2.48)	70 (2.75)	38 (1.50)	1.6 (0.06)
XX63R	NW63	105 (4.13)	105 (4.13)	114 (4.50)	64 (2.50)	1.6 (0.06)
XX100R	NW100	135 (5.31)	135 (5.31)	152 (6.00)	102 (4.00)	1.6 (0.06)
XX150R	NW150	167 (6.57)	167 (6.57)	203 (8.00)	152 (6.00)	2.0 (0.08)
XX200R	NW200	203 (7.99)	203 (7.99)	254 (10.00)	203 (8.00)	2.0 (0.08)





CF **CUBE** - 304L STAINLESS STEEL

PART NUMBER	PNEUROP	A	D1
CUBE16	NW16	34.6 (1.36)	15.8 (0.62)
CUBE35	NW35	74.0 (2.91)	38.1 (1.50)
CUBE63	NW63	127.0 (5.00)	64.0 (2.52)
CUBE100	NW100	160.0 (6.30)	101.6 (4.00)
CUBE150	NW150	235.0 (9.25)	149.7 (5.89)

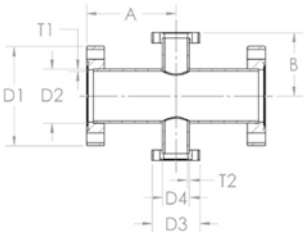


All measurements are in millimetres (inches in brackets)

CF **4-WAY REDUCING CROSS FIXED** - 304L STAINLESS STEEL

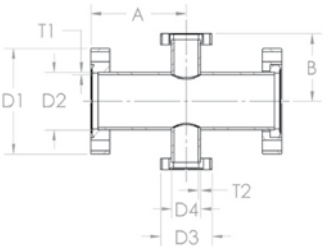
PART NUMBER	PNEUROP	A	B	D1	D2	T1	D3	D4	T2
UX3516	NW35/16	63 (2.48)	60 (2.36)	70 (2.75)	38 (1.5)	1.6 (0.06)	34 (1.33)	19 (0.75)	1.6 (0.06)
UX6316	NW63/16	105 (4.13)	77 (3.03)	114 (4.50)	64 (2.50)	1.6 (0.06)	34 (1.33)	19 (0.75)	1.6 (0.06)
UX6335	NW63/35	105 (4.13)	77 (3.03)	114 (4.50)	64 (2.50)	1.6 (0.06)	70 (2.75)	38 (1.50)	1.6 (0.06)
UX1016	NW100/16	135 (5.31)	95 (3.74)	152 (6.00)	102 (4.00)	1.6 (0.06)	34 (1.33)	19 (0.75)	1.6 (0.06)
UX1035	NW100/35	135 (5.31)	95 (3.74)	152 (6.00)	102 (4.00)	1.6 (0.06)	70 (2.75)	38 (1.50)	1.6 (0.06)
UX1063	NW100/63	135 (5.31)	95 (3.74)	152 (6.00)	102 (4.00)	1.6 (0.06)	114 (4.50)	64 (2.50)	1.6 (0.06)
UX1535	NW150/35	167 (6.57)	120 (4.72)	203 (8.00)	152 (6.00)	2.0 (0.08)	70 (2.75)	38 (1.50)	1.6 (0.06)
UX1563	NW150/63	167 (6.57)	120 (4.72)	203 (8.00)	152 (6.00)	2.0 (0.08)	114 (4.50)	64 (2.50)	1.6 (0.06)
UX1510	NW150/100	167 (6.57)	120 (4.72)	203 (8.00)	152 (6.00)	2.0 (0.08)	152 (6.00)	102 (4.00)	1.6 (0.06)

Bolt holes in-line, straddled available on request



CF **4-WAY CROSS ROTATABLE** - 304L STAINLESS STEEL

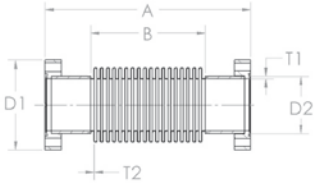
PART NUMBER	PNEUROP	A	B	D1	D2	T1	D3	D4	T2
UX3516R	NW35/16	63 (2.48)	60 (2.36)	70 (2.75)	38 (1.5)	1.6 (0.06)	34 (1.33)	19 (0.75)	1.6 (0.06)
UX6316R	NW63/16	105 (4.13)	77 (3.03)	114 (4.50)	64 (2.50)	1.6 (0.06)	34 (1.33)	19 (0.75)	1.6 (0.06)
UX6335R	NW63/35	105 (4.13)	77 (3.03)	114 (4.50)	64 (2.50)	1.6 (0.06)	70 (2.75)	38 (1.50)	1.6 (0.06)
UX1016R	NW100/16	135 (5.31)	95 (3.74)	152 (6.00)	102 (4.00)	1.6 (0.06)	34 (1.33)	19 (0.75)	1.6 (0.06)
UX1035R	NW100/35	135 (5.31)	95 (3.74)	152 (6.00)	102 (4.00)	1.6 (0.06)	70 (2.75)	38 (1.50)	1.6 (0.06)
UX1063R	NW100/63	135 (5.31)	95 (3.74)	152 (6.00)	102 (4.00)	1.6 (0.06)	114 (4.50)	64 (2.50)	1.6 (0.06)
UX1535R	NW150/35	167 (6.57)	120 (4.72)	203 (8.00)	152 (6.00)	2.0 (0.08)	70 (2.75)	38 (1.50)	1.6 (0.06)
UX1563R	NW150/63	167 (6.57)	120 (4.72)	203 (8.00)	152 (6.00)	2.0 (0.08)	114 (4.50)	64 (2.50)	1.6 (0.06)
UX1510R	NW150/100	167 (6.57)	120 (4.72)	203 (8.00)	152 (6.00)	2.0 (0.08)	152 (6.00)	102 (4.00)	1.6 (0.06)



All measurements are in millimetres (inches in brackets)

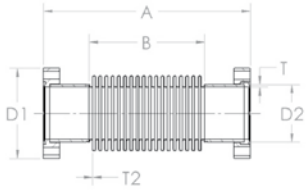
CF **FLEXIBLE BELLOWS FIXED** - STAINLESS STEEL

PART NUMBER	PNEUROP	A	B	D1	D2	T1	T2
FXB16	NW16	110 (4.33)	58 (2.28)	34 (1.33)	18.5 (0.73)	1.75 (0.07)	0.1 (0.01)
FXB35	NW35	160 (6.30)	91 (3.58)	70 (2.75)	44.5 (1.75)	2.00 (0.08)	0.2 (0.01)
FXB63	NW63	250 (9.84)	80 (3.15)	114 (4.50)	76.0 (2.99)	3.00 (0.12)	0.2 (0.01)
FXB100	NW100	250 (9.84)	143 (5.63)	152 (6.00)	108 (4.25)	3.00 (0.12)	0.4 (0.02)



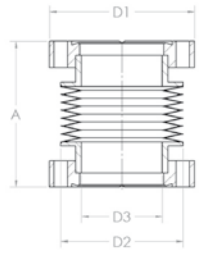
CF **FLEXIBLE BELLOWS ROTATABLE** - STAINLESS STEEL

PART NUMBER	PNEUROP	A	B	D1	D2	T1	T2
FXB16R	NW16	110 (4.33)	58 (2.28)	34 (1.33)	18.5 (0.73)	1.75 (0.07)	0.1 (0.01)
FXB35R	NW35	160 (6.30)	91 (3.58)	70 (2.75)	44.5 (1.75)	2.00 (0.08)	0.2 (0.01)
FXB63R	NW63	250 (9.84)	80 (3.15)	114 (4.50)	76.0 (2.99)	3.00 (0.12)	0.2 (0.01)
FXB100R	NW100	250 (9.84)	143 (5.63)	152 (6.00)	108 (4.25)	3.00 (0.12)	0.4 (0.02)



CF **EDGE WELDED BELLOWS FIXED** - STAINLESS STEEL

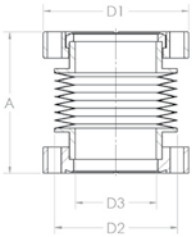
PART NUMBER	PNEUROP	Convolutions	Stroke	A	D1	D2	D3
EWB16	NW16	19	23 (0.91)	108 (4.25)	34 (1.33)	31.5 (1.24)	16.0 (0.63)
EWB35	NW35	13	26 (1.02)	155 (6.10)	70 (2.75)	59.0 (2.32)	38.0 (1.50)
EWB63	NW63	13	33 (1.30)	200 (7.87)	114 (4.50)	90.0 (3.54)	60.3 (2.37)
EWB100	NW100	11	33 (1.30)	219 (8.62)	152 (6.00)	132.0 (5.20)	104.0 (4.09)



All measurements are in millimetres (inches in brackets)

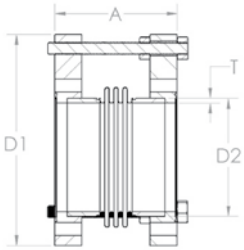
CF **EDGE WELDED BELLOWS ROTATABLE** - STAINLESS STEEL

PART NUMBER	PNEUROP	Convolutions	Stroke	A	D1	D2	D3
EWB16R	NW16	19	23 (0.91)	108 (4.25)	34 (1.33)	31.5 (1.24)	16.0 (0.63)
EWB35R	NW35	13	26 (1.02)	155 (6.10)	70 (2.75)	59.0 (2.32)	38.0 (1.50)
EWB63R	NW63	13	33 (1.30)	200 (7.87)	114 (4.50)	90.0 (3.54)	60.3 (2.37)
EWB100R	NW100	11	33 (1.30)	219 (8.62)	152 (6.00)	132.0 (5.20)	104.0 (4.09)



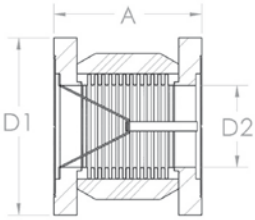
CF **PORT ALIGNER** - STAINLESS STEEL

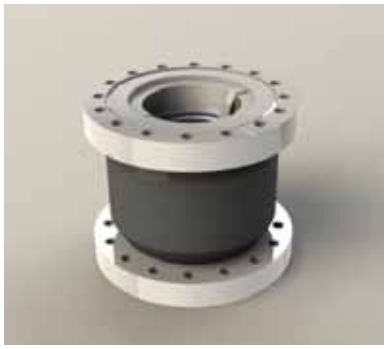
PART NUMBER	PNEUROP	A	D1	D2	T
PA3535	NW35	80 (3.15)	70 (2.75)	38 (1.5)	1.6 (0.06)
PA6363	NW63	80 (3.15)	114 (4.50)	64 (2.50)	1.6 (0.06)
PA1010	NW100	80 (3.15)	152 (6.00)	102 (4.00)	1.6 (0.06)



CF **VIBRATION ISOLATORS -** STAINLESS STEEL

PART NUMBER	PNEUROP	A	D1	D2
F35VBD	NW35	90 (3.54)	70 (2.75)	24 (0.94)
F63VBD	NW63	96 (3.78)	114 (4.50)	52 (2.05)
F100VBD	NW100	99 (3.90)	152 (6.00)	76 (2.99)





All measurements are in millimetres (inches in brackets)

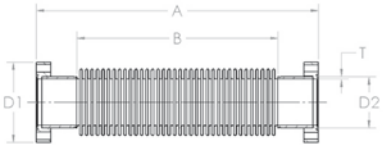
CF **FLEXIBLE HOSE** - STAINLESS STEEL

PART NUMBER	PNEUROP	A	B	D1	D2	T1
FX16CF25	NW16	250 (9.84)	210 (8.27)	34 (1.33)	16.0 (0.63)	2 (0.08)
FX16CF50	NW16	500 (19.69)	460 (18.11)	34 (1.33)	16.0 (0.63)	2 (0.08)
FX16CF75	NW16	750 (29.53)	710 (27.95)	34 (1.33)	16.0 (0.63)	2 (0.08)
FX16CF100	NW16	1000 (39.37)	960 (37.8)	34 (1.33)	16.0 (0.63)	2 (0.08)
FX35CF25	NW35	250 (9.84)	150 (5.91)	70 (2.75)	44.5 (1.75)	2 (0.08)
FX35CF50	NW35	500 (19.69)	400 (15.75)	70 (2.75)	44.5 (1.75)	2 (0.08)
FX35CF75	NW35	750 (29.53)	650 (25.59)	70 (2.75)	44.5 (1.75)	2 (0.08)
FX35CF100	NW35	1000 (39.37)	900 (35.43)	70 (2.75)	44.5 (1.75)	2 (0.08)
FX63CF25	NW63	250 (9.84)	126 (4.96)	114 (4.50)	76.0 (2.99)	3 (0.12)
FX63CF50	NW63	500 (19.69)	376 (14.8)	114 (4.50)	76.0 (2.99)	3 (0.12)
FX63CF75	NW63	750 (29.53)	626 (24.65)	114 (4.50)	76.0 (2.99)	3 0.12)
FX63CF100	NW63	1000 (39.37)	876 (34.49)	114 (4.50)	76.0 (2.99)	3 (0.12)
FX100CF25	NW100	250 (9.84)	146 (5.75)	152 (6.00)	108.0 (4.25)	3 (0.12)
FX100CF50	NW100	500 (19.69)	396 (15.59)	152 (6.00)	108.0 (4.25)	3 (0.12)
FX100CF75	NW100	750 (29.53)	646 (25.43)	152 (6.00)	108.0 (4.25)	3 (0.12)
FX100CF100	NW100	1000 (39.37)	896 (35.28)	152 (6.00)	108.0 (4.25)	3 (0.12)

Note: Both flanges fixed.

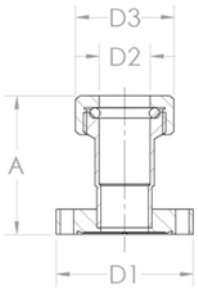
PART NUMBER	PNEUROP
FX16CF25R	NW16
FX16CF50R	NW16
FX16CF75R	NW16
FX16CF100R	NW16
FX35CF25R	NW35
FX35CF50R	NW35
FX35CF75R	NW35
FX35CF100R	NW35
FX63CF25R	NW63
FX63CF50R	NW63
FX63CF75R	NW63
FX63CF100R	NW63
FX100CF25R	NW100
FX100CF50R	NW100
FX100CF75R	NW100
FX100CF100R	NW100

Note: One flange fixed, other rotatable.



CF **COMPRESSION FIT TUBING ADAPTOR** - STAINLESS STEEL

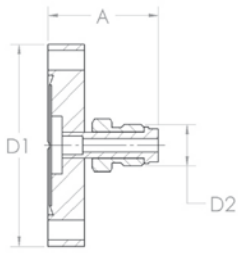
PART NUMBER	PNEUROP	A	D1	D2	D3
F16TA12	NW16	50 (1.97)	34 (1.33)	13.1 (0.52)	30 (1.18)
F35TA12	NW40	50 (1.97)	70 (2.75)	13.1 (0.52)	30 (1.18)
F35TA25	NW40	62 (2.44)	70 (2.75)	25.8 (1.02)	50 (1.97)
F35TA38	NW40	84 (3.31)	70 (2.75)	38.4 (1.51)	62 (2.44)
F63TA50	NW63	87 (3.43)	114 (4.50)	51.5 (2.03)	75 (2.95)



All measurements are in millimetres (inches in brackets)

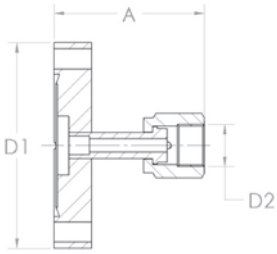
CF **MALE VCR ADAPTOR** - STAINLESS STEEL

PART NUMBER	PNEUROP	A	D1	D2
F16VCR6M	NW16	36 (1.42)	34 (1.33)	1/4″
F16VCR13M	NW16	41 (1.61)	34 (1.33)	1/2″
F35VCR6M	NW35	41 (1.61)	70 (2.75)	1/4″
F35VCR13M	NW35	46 (1.81)	70 (2.75)	1/2″
F35VCR19M	NW35	53 (2.09)	70 (2.75)	3/4″



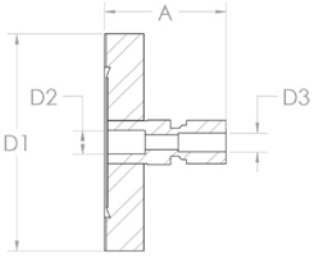
CF **FEMALE VCR ADAPTOR** - STAINLESS STEEL

PART NUMBER	PNEUROP	A	D1	D2
F16VCR6F	NW16	36 (1.42)	34 (1.33)	1/4″
F16VCR13F	NW16	41 (1.61)	34 (1.33)	1/2″
F35VCR6F	NW35	41 (1.61)	70 (2.75)	1/4″
F35VCR13F	NW35	46 (1.81)	70 (2.75)	1/2″
F35VCR19F	NW35	53 (2.09)	70 (2.75)	3/4″



CF TO **IMPERIAL PIPE ADAPTOR** - STAINLESS STEEL

PART NUMBER	PNEUROP	A	D1	D2	D3
F16SWA7	NW16	36 (1.42)	34 (1.33)	4.8 (0.19)	1/4″
F16SWA13	NW16	41 (1.61)	34 (1.33)	10.4 (0.41)	1/2″
F35SWA7	NW35	36 (1.42)	70 (2.75)	4.8 (0.19)	1/4″
F35SWA13	NW35	48 (1.89)	70 (2.75)	10.4 (0.41)	1/2″



All measurements are in millimetres (inches in brackets)

CF **LIQUID FEEDTHROUGHS** - STAINLESS STEEL

PART NUMBER	PNEUROP	D1	L1	L2	L3	L4	Tube Dia.	Pipe fitting
Single feedthrough								
LF16PP	NW16	34 (1.33)	45 (1.77)	75 (2.95)	-	-	6 (0.24)	PP
LF16SP	NW16	34 (1.33)	45 (1.77)	103 (4.06)	-	-	6 (0.24)	SP
LF16SS	NW16	34 (1.33)	103 (4.06)	103 (4.06)	-	-	6 (0.24)	SS
LF35PP	NW35	70 (2.75)	45 (1.77)	75 (2.95)	-	-	6 (0.24)	PP
LF35SP	NW35	70 (2.75)	45 (1.77)	103 (4.06)	-	-	6 (0.24)	SP
LF35SS	NW35	70 (2.75)	103 (4.06)	103 (4.06)	-	-	6 (0.24)	SS
Double feedthrough. Figure 1.								
LF352PP	NW35	70 (2.75)	45 (1.77)	75 (2.95)	75 (2.95)	45 (1.77)	6 (0.24)	PP
LF352SP	NW35	70 (2.75)	45 (1.77)	103 (4.06)	75 (2.95)	73 (2.87)	6 (0.24)	SP
LF352SS	NW35	70 (2.75)	73 (2.87)	103 (4.06)	103 (4.06)	73 (2.87)	6 (0.24)	SS

Pipe fitting, first letter indicates termination on vacuum side, second atmosphere.
P = Plain. S = 6mm or 12mm metric fitting.

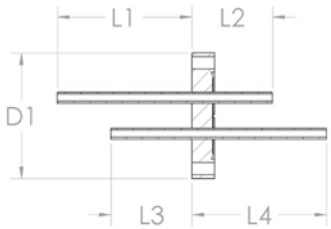


Figure 1

CF **LIQUID NITROGEN FEEDTHROUGHS** - STAINLESS STEEL

PART NUMBER	PNEUROP	D1	L1	L2	L3	L4	Tube Dia.	Pipe fitting
Single feedthrough								
LNF16PP	NW16	34 (1.35)	45 (1.77)	75 (2.95)	-	-	6 (0.24)	PP
LNF16SP	NW16	34 (1.35)	45 (1.77)	103 (4.06)	-	-	6 (0.24)	SP
LNF16SS	NW35	34 (1.35)	103 (4.06)	103 (4.06)	-	-	6 (0.24)	SS
LNF35PP	NW35	70 (2.75)	45 (1.77)	75 (2.95)	-	-	6 (0.24)	PP
LNF35SP	NW35	70 (2.75)	45 (1.77)	103 (4.06)	-	-	6 (0.24)	SP
LNF35SS	NW35	70 (2.75)	103 (4.06)	103 (4.06)	-	-	6 (0.24)	SS
2-way feedthough. Figure 1.								
LNF352PP	NW35	70 (2.75)	75 (2.95)	45 (1.77)	45 (1.77)	75 (2.95)	6 (0.24)	PP
LNF352SP	NW35	70 (2.75)	75 (2.95)	73 (2.87)	45 (1.77)	103 (4.06)	6 (0.24)	SP
LNF352SS	NW35	70 (2.75)	103 (4.06)	73 (2.87)	73 (2.87)	103 (4.06)	6 (0.24)	SS

Pipe fitting, first letter indicates termination on vacuum side, second atmosphere.
P = Plain. S = 6mm or 12mm metric fitting.

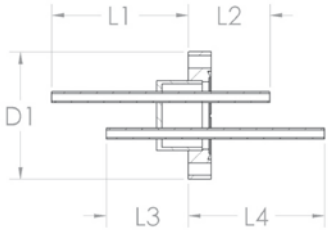


Figure 1

All measurements are in millimetres (inches in brackets)

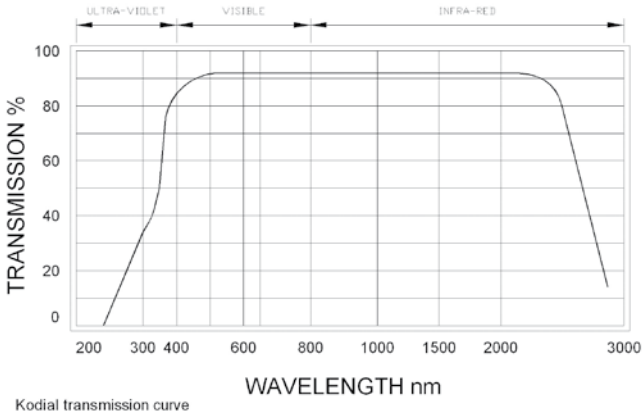
GLASS COMPONENTS

ITL's original business was founded on expertise in the manufacture of glass to metal seals. Today, ITL manufactures glass encapsulated ionisation gauge heads, viewports, glass and ceramic feedthroughs. The rare glass working expertise is available as a resource to our OEM customers. Standard zero length viewports are manufactured using Kodial glass. These viewports are UHV compatible and bakeable to 350 degrees centigrade. Graded seals, adaptors and flanged tubulations are also manufactured. Quartz, Magnesium Fluoride and special exotic material windows optimised for particular wavelength transmissions, plus anti-reflective coatings, can be quoted on request.

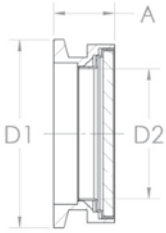
NW **ZERO LENGTH VIEWPORT** - 304L STAINLESS STEEL

PART NUMBER	PNEUROP	A	D1	D2
KVPZ40	NW40	12.7 (0.50	55 (2.17)	31 (1.30)
KVPZ40LA	NW40	15 (0.59)	55 (2.17)	36 (1.42)
KVPZ50LA	NW50	15 (0.59)	75 (2.95)	36 (1.42)

Bakeable to 200°C at not greater than 2-3°C per minute.



Kodial transmission curve

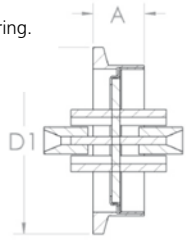


NW **OCTAL BASE FEEDTHROUGH** - 304L STAINLESS STEEL

PART NUMBER	PNEUROP	A	D1	No. & TYPE OF CONDUCTORS	CURRENT AMPS	VOLTAGE Kv
OBFGK	NW40	15 (0.59)	36 (1.42)	9 x Kovar	10	5
OBFMK	NW40	26.5 (1.04)	36 (1.42)	9 x Kovar	10	1

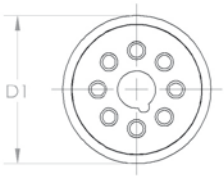
Please note that the OBFGK has Kovar pins sealed into an all glass base. OBFMK has Kovar pins sealed into a metal base with glass beads. Internal and external connectors are available for both (see socket connectors below).

The OBFMK has a KF 'O' ring carrier machined as part of the flange, so it can be sealed with an 'O' ring.
The OBFGK requires an 'O' ring and carrier to seal.
Both are bakeable to 150°C maximum.



SOCKET CONNECTOR

PART NUMBER	D1	CRIMP SOCKET No. x ID mm (Inch)	CURRENT (AMPS)	VOLTAGE	INTERNAL / EXTERNAL
VC8E	32 (1.26)	8 x 2.3 (0.09)	3	1	EXTERNAL
VC8I	32 (1.26)	8 x 2.3 (0.09)	3	1	INTERNAL

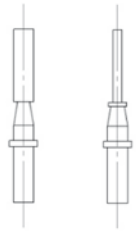


All measurements are in millimetres (inches in brackets)

FEEDTHROUGH CRIMP SET

PART NUMBER	BORE	TYPE	VACUUM COMPATIBLE	PACK QTY
CC23F2	2.3 (0.09)	FEMALE	YES	20
CC23M2	2.3 (0.09)	MALE	NO	20
CC23F	2.3 (0.09)	FEMALE	YES	20

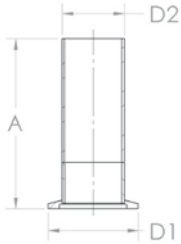
Please note, the non-vacuum compatible crimps should only be used on the atmosphere side of the flange.



NW **KODIAL TUBULATION** - 304L STAINLESS STEEL

PART NUMBER	PNEUROP	A	D1	D2
KF16T13	NW16	100 (3.94)	30 (1.18)	13 (0.50)
KF25T19	NW25	100 (3.94)	40 (1.57)	19 (0.75)
KF25T25	NW25	100 (3.94)	40 (1.57)	25 (1.00)
KF40T25	NW40	100 (3.94)	55 (2.17)	25 (1.00)
KF40T38	NW40	100 (3.94)	55 (2.17)	38 (1.50)

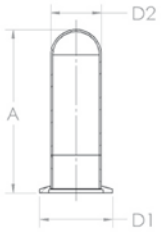
Bakeable to 200°C at not greater than 2-3°C per minute.
Quartz tubulations available on request.
NOTE: Dimensions subject to raw material supplier tolerances.



NW **DOMED KODIAL TUBULATION** - 304L STAINLESS STEEL

PART NUMBER	PNEUROP	A	D1	D2
KF16DT13	NW16	100 (3.94)	30 (1.18)	13 (0.50)
KF25DT25	NW25	100 (3.94)	40 (1.57)	25 (1.00)
KF40DT38	NW40	100 (3.94)	55 (2.17)	38 (1.50)

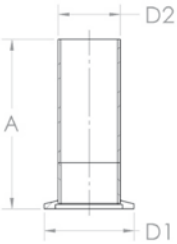
Bakeable to 200°C at not greater than 2-3°C per minute.
Quartz tubulations available on request.
NOTE: Dimensions subject to raw material supplier tolerances.



NW **PYREX TUBULATION** - 304L STAINLESS STEEL

PART NUMBER	PNEUROP	A	D1	D2
KF16T13P	NW16	100 (3.94)	30 (1.18)	13 (0.50)
KF25T19P	NW25	100 (3.94)	40 (1.57)	19 (0.75)
KF25T25P	NW25	100 (3.94)	40 (1.57)	25 (1.00)
KF40T25P	NW40	100 (3.94)	55 (2.17)	25 (1.00)
KF40T38P	NW40	100 (3.94)	55 (2.17)	38 (1.50)

Graded seal tubulation terminating in a length of pyrex bakeable to 200°C at not greater than 2-3°C per minute.
NOTE: Dimensions subject to raw material supplier tolerances.

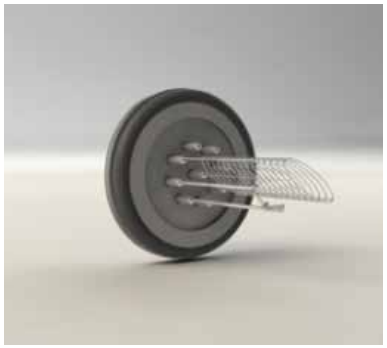


All measurements are in millimetres (inches in brackets)

KF **IONISATION GAUGE** - STAINLESS STEEL

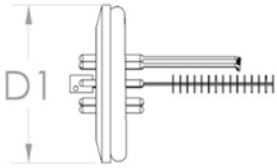
PART NUMBER	PNEUROP	FILAMENT TYPE	FILAMENT VOLTAGE
IGH8K/IR	NW40	Single thoriated iridium	8V

Other characteristics are: Collector voltage -50V; Grid voltage 150V; Sensitivity 8mbar^{-1}



IONISATION GAUGE CONNECTORS AND LEAD

PART NUMBER	DESCRIPTION	TO FIT GAUGE HEAD
IGL8B	2m Bakeable lead set	IGH8 Series
IGL8	2m Non-bakeable lead set	IGH8 Series
IGPB	Non-bakeable connector	IGH8 Series



IONISATION GAUGE FILAMENT KITS

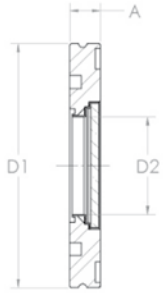
PART NUMBER	FILAMENT TYPE	TO FIT GAUGE HEAD
FK8I1	Single thoriated iridium	IGH8 Series
FK8I2	Twin helical thoriated iridium	IGH8 Series

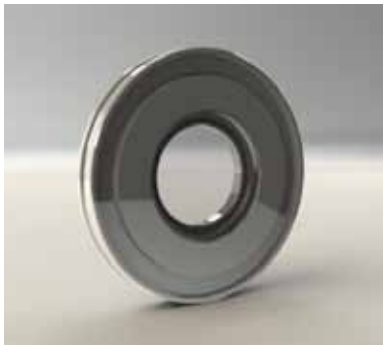
The IGH8 series of ionisation gauge heads are built on a glass to metal sealed base and are suitable for use in the range 10^{-3} to 10^{-9} mbar.

ISO **ZERO LENGTH VIEWPORT** - 304L STAINLESS STEEL

PART NUMBER	PNEUROP	A	D1	D2
ISO100VPZ	ISO100	12 (0.47)	130 (5.12)	63 (2.48)
ISO160VPZ	ISO160	12 (0.47)	180 (7.09)	89 (3.50)
IS0200VPZ	ISO200	12 (0.47)	240 (9.45)	136 (5.35)
ISO250VPZ	ISO250	12 (0.47)	290 (11.42)	136 (5.35)

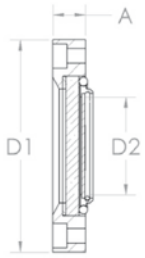
Bakeable to 200°C at not greater than 2-3°C per minute.
Quartz and Sapphire assembly available on request.





ISO **SIGHT GLASS**

PART NUMBER	PNEUROP	A	D1	D2
ISO63SGV	ISO63	20 (0.79)	130 (5.12)	60 (2.36)
ISO100SGV	ISO100	22 (0.87)	165 (6.50)	92 (3.62)
ISO160SGV	ISO160	30 (1.18)	225 (8.86)	142 (5.59)



All measurements are in millimetres (inches in brackets)

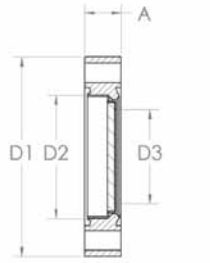
CF **ZERO LENGTH VIEWPORT** - STAINLESS STEEL

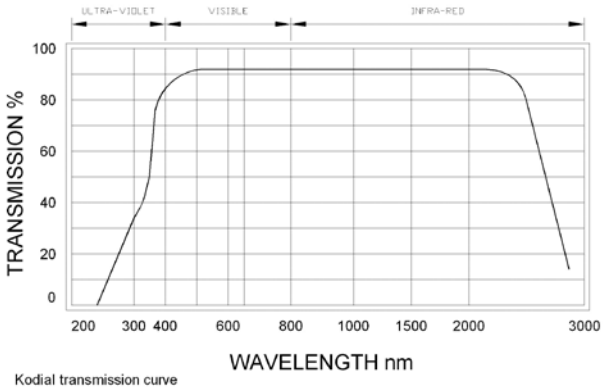
PART NUMBER	PNEUROP	A	D1	D2	D3
VPZ16	NW16	12.7 (0.50)	34 (1.30)	18 (0.71)	16 (0.63)
VPZ38	NW35	12.7 (0.50)	70 (2.75)	42 (1.65)	33 (1.30)
VPZ38LA	NW35	12.7 (0.50)	70 (2.75)	48 (1.89)	39 (1.54)
VPZ64	NW63	17.4 (0.69)	114 (4.50)	72 (2.83)	63 (2.48)
VPZ100	NW100	19.9 (0.78)	152 (6.00)	106 (4.17)	89 (3.50)
VPZ150	NW150	22.3 (0.88)	203 (8.00)	156 (6.14)	136 (5.35)

PART NUMBER
VPZ16LN
VPZ38LN
VPZ38LALN
VPZ64LN
VPZ100LN
VPZ150LN

Bakeable to 350°C at not greater than 2-3°C per minute.
To be used with annealed copper gaskets.

316LN flange, Kovar weld ring.



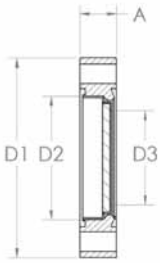


Kodial transmission curve

CF **ZERO LENGTH NON-MAGNETIC VIEWPORT** - STAINLESS STEEL

PART NUMBER	PNEUROP	A	D1	D2	D3
VPZ16LN-NM	NW16	12.7 (0.50)	34 (1.30)	18 (0.71)	16 (0.63)
VPZ38LN-NM	NW35	12.7 (0.50)	70 (2.75)	42 (1.65)	33 (1.30)
VPZ64LN-NM	NW63	17.4 (0.69)	114 (4.50)	72 (2.83)	63 (2.48)
VPZ100LN-NM	NW100	19.9 (0.78)	152 (6.00)	106 (4.17)	89 (3.50)
VPZ150LN-NM	NW150	22.3 (0.88)	203 (8.00)	156 (6.14)	136 (5.35)

Supplied with 316LN flange, tantalum welding ring, Bakeable to 120°C at not greater than 2-3°C per minute. To be used with annealed copper gaskets.



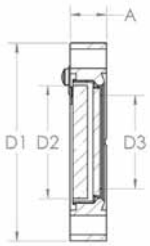
CF **ZERO LENGTH VIEWPORT WITH FITTED LEAD GLASS DISC** - STAINLESS STEEL

PART NUMBER	PNEUROP	A	D1	D2	D3
VPZ16LG	NW16	12.7 (0.50)	34 (1.30)	18 (0.71)	16 (0.63)
VPZ38LG	NW35	12.7 (0.50)	70 (2.75)	42 (1.65)	33 (1.30)
VPZ64LG	NW63	17.4 (0.69)	114 (4.50)	72 (2.83)	63 (2.48)
VPZ100LG	NW100	19.9 (0.78)	152 (6.00)	106 (4.17)	89 (3.50)
VPZ150LG	NW150	22.3 (0.88)	203 (8.00)	156 (6.14)	136 (5.35)

PART NUMBER
VPZ16LGLN
VPZ38LGLN
VPZ64LGLN
VPZ100LGLN
VPZ150LGLN

Bakeable to 350°C at not greater than 2-3°C per minute. To be used with annealed copper gaskets.

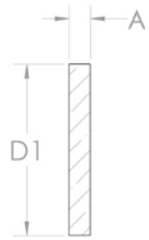
316LN flange, Kovar weld ring.

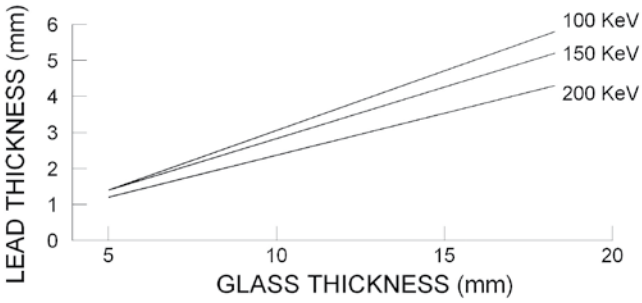


All measurements are in millimetres (inches in brackets)

CF **REPLACEMENT GLASS X-RAY LEAD GLASS PROTECTION DISCS**

PART NUMBER	PNEUROP	TO FIT	A	D1
LG16	NW16	VPZ16	5 (0.20)	17 (0.67)
LG38	NW35	VPZ38	5 (0.20)	40 (1.57)
LG64	NW63	VPZ64	5 (0.20)	70 (2.76)
LG100	NW100	VPZ100	5 (0.20)	93 (3.66)
LG150	NW150	VPZ150	5 (0.20)	143 (5.63)

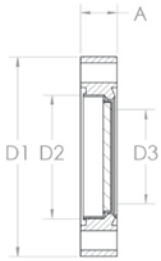




CF **ANTI-REFLECTIVE COATED ZERO LENGTH VIEWPORT** - STAINLESS STEEL

PART NUMBER	PNEUROP	A	D1	D2	D3
VPZ16AR	NW16	12.7 (0.50)	34 (1.30)	18 (0.71)	16 (0.63)
VPZ38AR	NW35	12.7 (0.50)	70 (2.75)	42 (1.65)	33 (1.30)
VPZ38LAAR	NW35	12.7 (0.50)	70 (2.75)	48 (1.89)	39 (1.54)
VPZ64AR	NW63	17.4 (0.69)	114 (4.50)	72 (2.83)	63 (2.48)
VPZ100AR	NW100	19.9 (0.78)	152 (6.00)	106 (4.17)	89 (3.50)
VPZ150AR	NW150	22.3 (0.88)	203 (8.00)	156 (6.14)	136 (5.35)

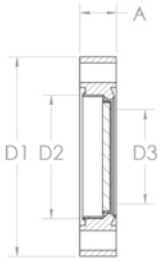
Zero length viewport with a MgF_2 anti-reflective coating on both side. Multi-layer coating available on request.



CF **$InSnO_2$ COATED ZERO LENGTH VIEWPORT** - STAINLESS STEEL

PART NUMBER	PNEUROP	A	D1	D2	D3
VPZ16ITO	NW16	12.7 (0.50)	34 (1.30)	18 (0.71)	16 (0.63)
VPZ38ITO	NW35	12.7 (0.50)	70 (2.75)	42 (1.65)	33 (1.30)
VPZ64ITO	NW63	17.4 (0.69)	114 (4.50)	72 (2.83)	63 (2.48)
VPZ100ITO	NW100	19.9 (0.78)	152 (6.00)	106 (4.17)	89 (3.50)
VPZ150ITO	NW150	22.3 (0.88)	203 (8.00)	156 (6.14)	136 (5.35)

Zero length viewport with an Indium Tin Oxide conducting layer on vacuum side of window.



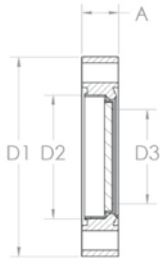
All measurements are in millimetres (inches in brackets)

CF **QUARTZ ZERO LENGTH VIEWPORT** - STAINLESS STEEL

PART NUMBER	PNEUROP	A	D1	D2	D3	PART NUMBER
VPZ16Q	NW16	12.7 (0.50)	34 (1.30)	18 (0.71)	16 (0.63)	VPZ16QLN
VPZ38Q	NW35	12.7 (0.50)	70 (2.75)	42 (1.65)	33 (1.30)	VPZ38QLN
VPZ38LAQ	NW35	12.7 (0.50)	70 (2.75)	48 (1.89)	39 (1.54)	VPZ38LAQLN
VPZ64Q	NW63	17.4 (0.69)	114 (4.50)	72 (2.83)	63 (2.48)	VPZ64QLN
VPZ100Q	NW100	19.9 (0.78)	152 (6.00)	106 (4.17)	89 (3.50)	VPZ100QLN
VPZ150Q	NW150	22.3 (0.88)	203 (8.00)	156 (6.14)	136 (5.35)	VPZ150QLN

Bakeable to 200°C at not greater than 2-3°C per minute. To be used with annealed copper gaskets.

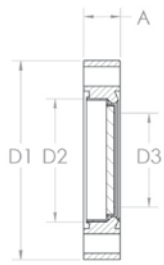
316LN flange, Kovar weld ring.

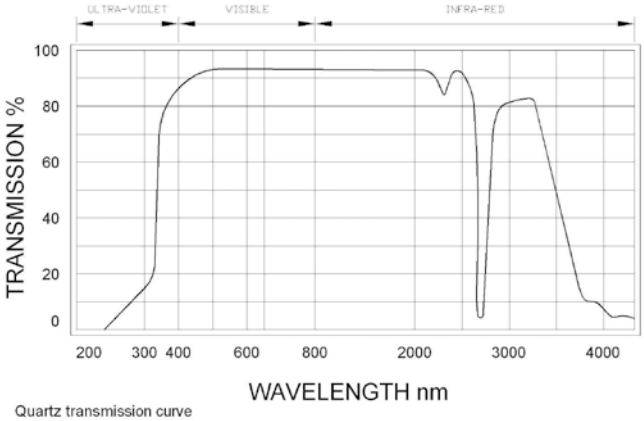


CF **QUARTZ ZERO LENGTH NON-MAGNETIC VIEWPORT** - STAINLESS STEEL

PART NUMBER	PNEUROP	A	D1	D2	D3
VPZ16QLN-NM	NW16	12.7 (0.50)	34 (1.30)	18 (0.71)	16 (0.63)
VPZ38QLN-NM	NW35	12.7 (0.50)	70 (2.75)	42 (1.65)	33 (1.30)
VPZ38LAQLN-NM	NW35	12.7 (0.50)	70 (2.75)	48 (1.89)	39 (1.54)
VPZ64QLN-NM	NW63	17.4 (0.69)	114 (4.50)	72 (2.83)	63 (2.48)
VPZ100QLN-NM	NW100	19.9 (0.78)	152 (6.00)	106 (4.17)	89 (3.50)
VPZ150QLN-NM	NW150	22.3 (0.88)	203 (8.00)	156 (6.14)	136 (5.35)

Supplied with 316LN flange, tantalum welding ring, Bakeable to 200°C at not greater than 2-3°C per minute. To be used with annealed copper gaskets.





Quartz transmission curve

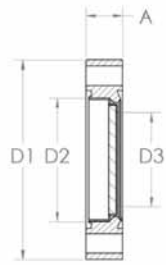
All measurements are in millimetres (inches in brackets)

CF **SAPPHIRE ZERO LENGTH VIEWPORT** - STAINLESS STEEL

PART NUMBER	PNEUROP	A	D1	D2	D3	PART NUMBER
VPZ16S	NW16	12.7 (0.50)	34 (1.30)	18 (0.71)	16 (0.63)	VPZ16SLN
VPZ38S	NW35	12.7 (0.50)	70 (2.75)	42 (1.65)	33 (1.30)	VPZ38SLN
VPZ38LAS	NW35	12.7 (0.50)	70 (2.75)	48 (1.89)	39 (1.54)	VPZ38LASLN
VPZ64S	NW63	17.4 (0.69)	114 (4.50)	72 (2.83)	63 (2.48)	VPZ64SLN
VPZ100S	NW100	19.9 (0.78)	152 (6.00)	106 (4.17)	89 (3.50)	VPZ100SLN
VPZ150S	NW150	22.3 (0.88)	203 (8.00)	156 (6.14)	136 (5.35)	VPZ150SLN

Bakeable to 450°C at not greater than 2-3°C per minute. To be used with annealed copper gaskets.

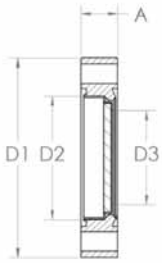
316LN flange, Kovar weld ring.

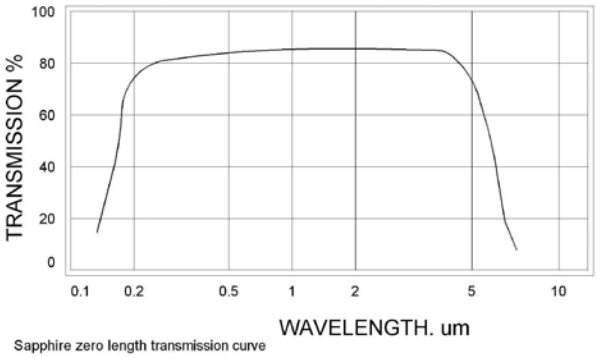


CF **SAPPHIRE ZERO LENGTH NON-MAGNETIC VIEWPORT** - STAINLESS STEEL

PART NUMBER	PNEUROP	A	D1	D2	D3
VPZ16SLN-NM	NW16	12.7 (0.50)	34 (1.30)	18 (0.71)	16 (0.63)
VPZ38SLN-NM	NW35	12.7 (0.50)	70 (2.75)	42 (1.65)	33 (1.30)
VPZ38LASLN-NM	NW35	12.7 (0.50)	70 (2.75)	48 (1.89)	39 (1.54)
VPZ64SLN-NM	NW63	17.4 (0.69)	114 (4.50)	72 (2.83)	63 (2.48)
VPZ100SLN-NM	NW100	19.9 (0.78)	152 (6.00)	106 (4.17)	89 (3.50)
VPZ150SLN-NM	NW150	22.3 (0.88)	203 (8.00)	156 (6.14)	136 (5.35)

Supplied with 316LN flange, tantalum welding ring, Bakeable to 450°C at not greater than 2-3°C per minute. To be used with annealed copper gaskets.





Sapphire zero length transmission curve

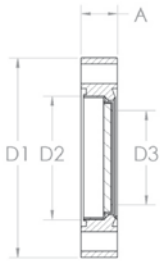
All measurements are in millimetres (inches in brackets)

CF **ZINC SELENIDE ZERO LENGTH VIEWPORT** - STAINLESS STEEL

PART NUMBER	PNEUROP	A	D1	D2	D3	PART NUMBER
VPZ16ZnSe	NW16	12.7 (0.50)	34 (1.30)	18 (0.71)	16 (0.63)	VPZ16ZnSeLN
VPZ38ZnSe	NW35	12.7 (0.50)	70 (2.75)	42 (1.65)	33 (1.30)	VPZ38ZnSeLN
VPZ38LAZnSe	NW35	12.7 (0.50)	70 (2.75)	48 (1.89)	39 (1.54)	VPZ38LAZnSeLN
VPZ64ZnSe	NW63	17.4 (0.69)	114 (4.50)	72 (2.83)	63 (2.48)	VPZ64ZnSeLN
VPZ100ZnSe	NW100	19.9 (0.78)	152 (6.00)	106 (4.17)	89 (3.50)	VPZ100ZnSeLN
VPZ150ZnSe	NW150	22.3 (0.88)	203 (8.00)	156 (6.14)	136 (5.35)	VPZ150ZnSeLN

Bakeable to 120°C at not greater than 2-3°C per minute. To be used with annealed copper gaskets.

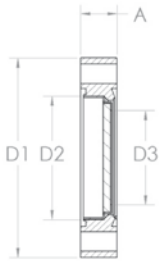
316LN flange, Kovar weld ring.



CF **ZINC SELENIDE ZERO LENGTH NON-MAGNETIC VIEWPORT** - STAINLESS STEEL

PART NUMBER	PNEUROP	A	D1	D2	D3
VPZ16ZnSeLN-NM	NW16	12.7 (0.50)	34 (1.30)	18 (0.71)	16 (0.63)
VPZ38ZnSeLN-NM	NW35	12.7 (0.50)	70 (2.75)	42 (1.65)	33 (1.30)
VPZ38LAZnSeLN-NM	NW35	12.7 (0.50)	70 (2.75)	48 (1.89)	39 (1.54)
VPZ64ZnSeLN-NM	NW63	17.4 (0.69)	114 (4.50)	72 (2.83)	63 (2.48)
VPZ100ZnSeLN-NM	NW100	19.9 (0.78)	152 (6.00)	106 (4.17)	89 (3.50)
VPZ150ZnSeLN-NM	NW150	22.3 (0.88)	203 (8.00)	156 (6.14)	136 (5.35)

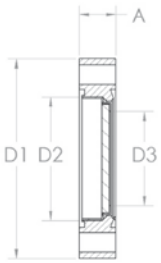
Supplied with 316LN flange, tantalum welding ring, Bakeable to 120°C at not greater than 2-3°C per minute. To be used with annealed copper gaskets.

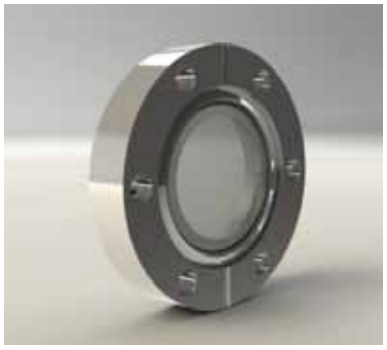


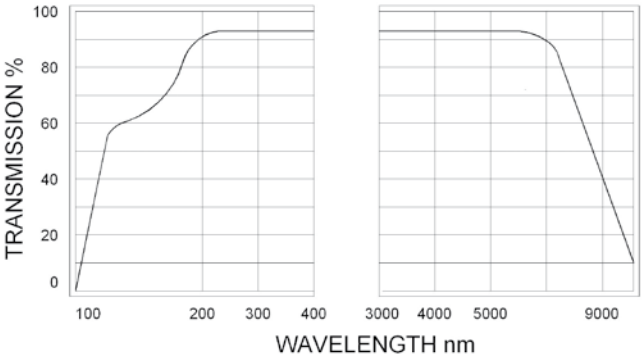
CF **MAGNESIUM FLUORIDE ZERO LENGTH VIEWPORT** - STAINLESS STEEL

PART NUMBER	PNEUROP	A	D1	D2	D3
VPZ20MF	NW35	12.7 (0.50)	70 (2.75)	38 (1.50)	20 (0.79)
VPZ38MF	NW35	12.7 (0.50)	70 (2.75)	45 (1.77)	38 (1.50)

Magnesium fluoride zero length viewports sealed by means of a frit technique are bakeable to 300°C at not greater than 2-3°C per minute. To be used with annealed copper gaskets.







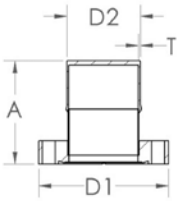
Magnesium flouride transmission curve

All measurements are in millimetres (inches in brackets)

CF **TUBULATED KODIAL VIEWPORT** - STAINLESS STEEL

PART NUMBER	PNEUROP	A	D1	D2	T
VP13	NW16	30 (1.18)	34 (1.33)	13 (0.50)	1.0 (0.04)
VP19	NW35	30 (1.18)	70 (2.75)	19 (0.75)	1.5 (0.06)
VP63	NW63	70 (2.76)	114 (4.50)	64 (2.50)	2.0 (0.08)

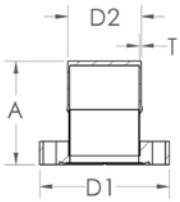
NOTE: Dimensions subject to raw material supplier tolerances.



CF **TUBULATED QUARTZ VIEWPORT** - STAINLESS STEEL

PART NUMBER	PNEUROP	A	D1	D2	T
VP13Q	NW16	30 (1.18)	34 (1.33)	13 (0.50)	1.0 (0.04)
VP19Q	NW35	30 (1.18)	70 (2.75)	19 (0.75)	1.5 (0.06)
VP63Q	NW63	70 (2.76)	114 (4.50)	64 (2.50)	2.0 (0.08)

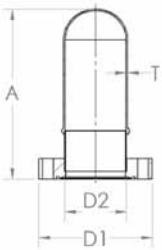
NOTE: Dimensions subject to raw material supplier tolerances.



CF **TUBULATED KODIAL VIEWPORT** - STAINLESS STEEL

PART NUMBER	PNEUROP	A	D1	D2	T
T13DT	NW16	100 (3.94)	34 (1.33)	13 (0.50)	1.0 (0.04)
T38DT	NW35	100 (3.94)	70 (2.75)	38 (1.50)	1.6 (0.06)
T64DT	NW63	150 (5.91)	114 (4.50)	64 (2.50)	2.0 (0.08)

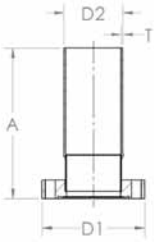
NOTE: Dimensions subject to raw material supplier tolerances.



CF **KODIAL TUBULATION** - STAINLESS STEEL

PART NUMBER	PNEUROP	A	D1	D2	T
T6	NW16	100 (3.94)	34 (1.33)	6 (0.25)	1.0 (0.04)
T13	NW16	100 (3.94)	34 (1.33)	13 (0.50)	1.0 (0.04)
T19	NW35	100 (3.94)	70 (2.75)	19 (0.75)	1.5 (0.06)
T25	NW35	100 (3.94)	70 (2.75)	25 (1.00)	1.5 (0.06)
T38	NW35	100 (3.94)	70 (2.75)	38 (1.50)	1.6 (0.06)
T64	NW63	100 (3.94)	114 (4.50)	64 (2.50)	2.0 (0.08)

NOTE: Dimensions subject to raw material supplier tolerances.

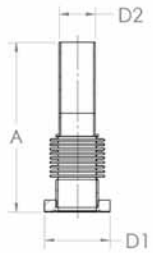


All measurements are in millimetres (inches in brackets)

CF **KODIAL TUBULATION WITH HYDROFORMED BELLOWS** - STAINLESS STEEL

PART NUMBER	PNEUROP	A	D1	D2
TB6	NW16	170 (6.69)	34 (1.33)	6 (0.25)
TB13	NW16	170 (6.69)	34 (1.33)	13 (0.50)
TB19	NW35	190 (7.48)	70 (2.75)	19 (0.75)
TB25	NW35	200 (7.87)	70 (2.75)	25 (1.00)
TB38	NW35	200 (7.87)	70 (2.75)	38 (1.50)
TB64	NW63	260 (10.24)	114 (4.50)	64 (2.50)

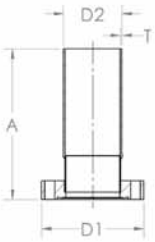
NOTE: Dimensions subject to raw material supplier tolerances.



CF **PYREX TUBULATION** - STAINLESS STEEL

PART NUMBER	PNEUROP	A	D1	D2	T
T6P	NW16	100 (3.94)	34 (1.33)	6 (0.25)	1.0 (0.04)
T13P	NW16	100 (3.94)	34 (1.33)	13 (0.50)	1.0 (0.04)
T19P	NW35	100 (3.94)	70 (2.75)	19 (0.75)	1.5 (0.06)
T25P	NW35	100 (3.94)	70 (2.75)	25 (1.00)	1.5 (0.06)
T38P	NW35	100 (3.94)	70 (2.75)	38 (1.50)	1.6 (0.06)
T63P	NW63	100 (3.94)	114 (4.50)	64 (2.50)	2.0 (0.08)

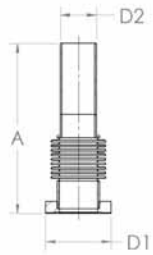
NOTE: Dimensions subject to raw material supplier tolerances.



CF **PYREX TUBULATION WITH HYDROFORMED BELLOWS** - STAINLESS STEEL

PART NUMBER	PNEUROP	A	D1	D2
T6PB	NW16	170 (6.69)	34 (1.33)	6 (0.25)
T13PB	NW16	170 (6.69)	34 (1.33)	13 (0.50)
T19PB	NW35	190 (7.48)	70 (2.75)	19 (0.75)
T25PB	NW35	200 (7.87)	70 (2.75)	25 (1.00)
T38PB	NW35	200 (7.87)	70 (2.75)	38 (1.50)
T63PB	NW63	260 (10.24)	114 (4.50)	64 (2.50)

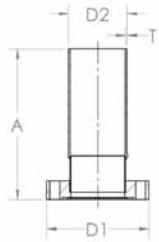
NOTE: Dimensions subject to raw material supplier tolerances.



CF **QUARTZ TUBULATION** - STAINLESS STEEL

PART NUMBER	PNEUROP	A	D1	D2	T
T6Q	NW16	100 (3.94)	34 (1.33)	6 (0.24)	1.0 (0.04)
T13Q	NW16	100 (3.94)	34 (1.33)	13 (0.51)	1.0 (0.04)
T19Q	NW35	100 (3.94)	70 (2.75)	19 (0.75)	1.5 (0.06)
T25Q	NW35	100 (3.94)	70 (2.75)	25 (0.98)	1.5 (0.06)
T38Q	NW35	100 (3.94)	70 (2.75)	38 (1.50)	1.6 (0.06)
T63Q	NW63	100 (3.94)	114 (4.50)	64 (2.52)	2.0 (0.08)

NOTE: Dimensions subject to raw material supplier tolerances.

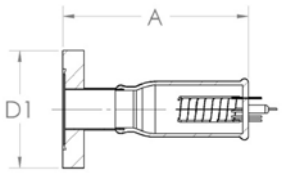


All measurements are in millimetres (inches in brackets)

CF **IONISATION GAUGE HEAD** - GLASS ENCAPSULATED

PART NUMBER	PRESSURE GAUGE mbar	SENSITIVITY mbar[1]	X-RAY LIGHT mbar	FILAMENT TYPE AND No.	BASE TYPE	FILAMENT VOLTAGE	COLLECTOR VOLTAGE	GRID VOLTAGE	CONNECTOR / LEAD
VIG30	10^{-3} to 10^{-10}	13	3 x 10^{-10}	Twin tungsten	Glass	0 to 5V	-20 to -80V	112 to 180V	Barrel or crimp
VIG39	10^{-2} to 10^{-7}	7	7 x 10^{-8}	Single Tungsten*	Glass	2 to 5V	-20 to -60V	120 to 250V	Barrel or crimp
IGH9	10^{-3} to 10^{-10}	9	3 x 10^{-10}	Twin thoriated iridium	Glass	3 to 6V	-20 to -65V	150 to 250V	IGP9/IGL9B

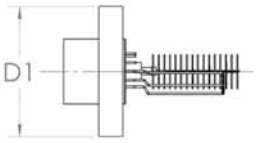
* Iridium version available on request



CF **IONISATION GAUGE HEAD** - NUDE

PART NUMBER	PRESSURE GAUGE mbar	SENSITIVITY mbar[1]	X-RAY LIGHT mbar	FILAMENT TYPE AND No.	BASE TYPE	FILAMENT VOLTAGE	COLLECTOR VOLTAGE	GRID VOLTAGE	CONNECTOR / LEAD
VIG32NTIR	10^{-3} to 10^{-10}	13	3 x 10^{-10}	Twin thoriated iridium	Glass	0 to 5V	-20 to 80V	112 to 180V	Barrel or crimp
IGH8/IR	10^{-3} to 10^{-9}	8	5 x 10^{-10}	Replaceable single thoriated iridium	Metal / Glass bead	8V	-50V	150V	IGP8/B, IGL8/B
IGH8T/W	10^{-3} to 10^{-9}	8	5 x 10^{-10}	Replaceable twin tungsten	Metal / Glass bead	16V	-50V	150V	IGP8B, IGL8B
IGH11/W	10^{-3} to 10^{-11}	17	4 x 10^{-11}	Replaceable twin tungsten	Ceramic	6 to 20V	-50V	180V	IGPBK, IGLBK

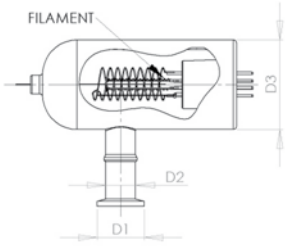
Replacement filament kits available on request.



All measurements are in millimetres (inches in brackets)

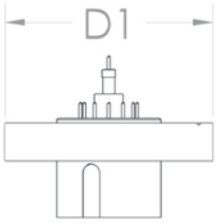
IONISATION GAUGE HEAD - GLASS ENCAPSULATED

PART NUMBER	OPERATING PRESSURE mbar	FILAMENT TYPE	SIDE PORT (D1)	D2	D3
BA-0.75-F35	10^{-3} to 10^{-10}	Thoriated iridium	DN40CF Flg.	19.05 (0.75)	57 (2.24)
BA-0.75-KOV	10^{-3} to 10^{-10}	Thoriated iridium	Kovar	19.05 (0.75)	57 (2.24)
BA-0.75-GLASS	10^{-3} to 10^{-10}	Thoriated iridium	Glass	19.05 (0.75)	57 (2.24)
BA-0.75-T-KOV	10^{-3} to 10^{-10}	Twin tungsten	Kovar	19.05 (0.75)	57 (2.24)
BA-0.75-T-GLASS	10^{-3} to 10^{-10}	Twin tungsten	Glass	19.05 (0.75)	57 (2.24)
BA-1.00-F35	10^{-3} to 10^{-10}	Thoriated iridium	DN40CF Flg.	25.40 (1.00)	57 (2.24)
BA-1.00-KF25	10^{-3} to 10^{-10}	Thoriated iridium	DN25KF Flg.	25.40 (1.00)	57 (2.24)
BA-1.00-KF40	10^{-3} to 10^{-10}	Thoriated iridium	DN40KF Flg.	25.40 (1.00)	57 (2.24)
BA-1.00-KOV	10^{-3} to 10^{-10}	Thoriated iridium	Kovar	25.40 (1.00)	57 (2.24)
BA-1.00-GLASS	10^{-3} to 10^{-10}	Thoriated iridium	Glass	25.40 (1.00)	57 (2.24)
BA-1.00-T-KOV	10^{-3} to 10^{-10}	Twin tungsten	Kovar	25.40 (1.00)	57 (2.24)
BA-1.00-T-GLASS	10^{-3} to 10^{-10}	Twin tungsten	Glass	25.40 (1.00)	57 (2.24)



CF **MULTIPIN CERAMIC FEEDTHROUGH** - STAINLESS STEEL

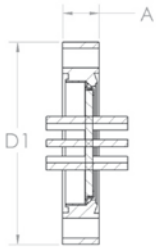
PART NUMBER	PNEUROP	D1
SFT12C	CF35	70 (2.75)



CF **MULTIPIN CERAMIC FEEDTHROUGH** - STAINLESS STEEL

PART NUMBER	PNEUROP	D1	A	No. & TYPE OF CONDUCTORS	CURRENT AMPS	VOLTAGE Kv
OBFG	CF35	70 (2.75)	12.7 (0.5)	9 x Kovar	10	5
OBFM	CF35	70 (2.75)	12.7 (0.5)	9 x Kovar	10	1

Please note that the OBFG has Kovar pins sealed into an all glass base. OBFM has Kovar pins sealed into a metal base with glass beads. Internal and external connectors are available for both (see socket connectors below).

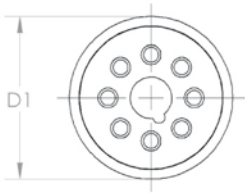


All measurements are in millimetres (inches in brackets)

SOCKET CONNECTOR

PART NUMBER	D1	CRIMP SOCKET	CURRENT	VOLTAGE	INTERNAL / EXTERNAL	TO FIT
VC12E	32 (1.26	10 x 1.0	5	3	EXTERNAL	SFT12C
VC12I	32 (1.26	11 x 1.0	5	3	INTERNAL	SFT12C
VC8E	32 (1.26)	8 x 2.3	3	1	EXTERNAL	OBFG, OBGM
VC8I	32 (1.26)	8 x 2.3	3	1	INTERNAL	OBFG, OBGM

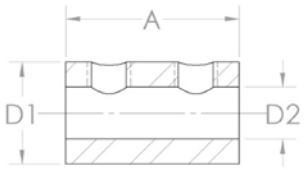
All connectors have a unique fitting orientation to obviate incorrect wiring connections. All external connectors are bakeable to 250˚C and all internal connectors are bakeable to 150˚C maximum.



BARREL CONNECTOR - STAINLESS STEEL

PART NUMBER	D2	D1	A	SCREWS
BC10	1.1 (0.04)	4.7 (0.19)	8 (0.39)	2 x GRUB
BC23	2.4 (0.09)	4.7 (0.19)	8 (0.39)	2 x GRUB
BC15	1.5 (0.06)	4.7 (0.19)	13 (0.51)	2 x PAN
BC18	1.8 (0.07)	4.7 (0.19)	13 (0.51)	2 x PAN
BC30	3.0 (0.12)	6.4 (0.25)	14 (0.55)	2 x PAN

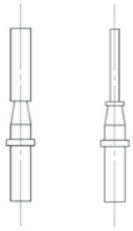
Pack size: 10pcs



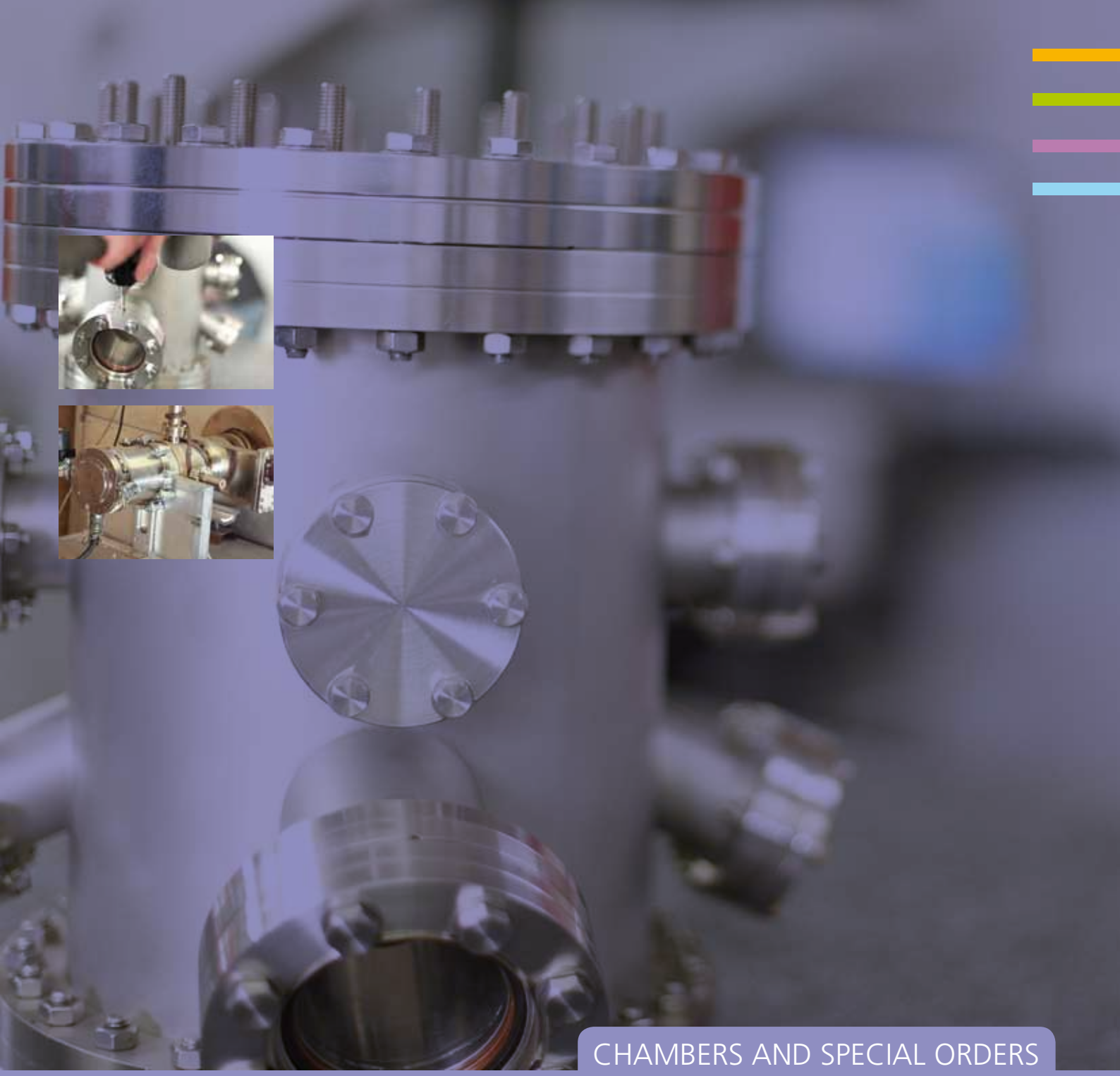
FEEDTHROUGH CRIMP SET

PART NUMBER	BORE	TYPE	VACUUM COMPATABLE	PACK QTY
CC10F	1.0 (0.04)	FEMALE	YES	20
CC10M	1.0 (0.04)	MALE	NO	20
CC23F2	2.3 (0.09)	FEMALE	YES	20
CC23M2	2.3 (0.09)	MALE	NO	20

Please note, the non-vacuum compatible crimps should only be used on the atmosphere side of the flange.



All measurements are in millimetres (inches in brackets)



CHAMBERS AND SPECIAL ORDERS

ITL are experts in the manufacture of special orders and chambers direct from your drawings, data or verbal instructions. Where required our Technical Support Engineer's experience is available to you, ensuring we produce the correct design for your application.

Our comprehensive manufacturing facilities means we can custom build any vacuum chamber or fabrication promptly and cost efficiently whilst ensuring the highest quality standards. Large capacity machining centres and handling equipment are also available for the fabrication of special vacuum assemblies and chambers of up to two metres diameter.

Drawing Office

Our highly experienced drawing office will produce engineering drawings of your proposed custom products based on your requirements and specification. Or if available we can work from supplied drawings. An experienced vacuum system specialist will visit your site to discuss your needs on request.

Manufacturing Capabilities

We are able to supply one off specials ranging from a standard part with an additional port configuration to multi-port chambers up to two metres diameter, utilising large capacity machining centres and handling equipment for the fabrication of special vacuum assemblies and chambers. We can supply one off's on demand or manufacture and supply specials on a regular basis for high and ultra-high vacuum applications.

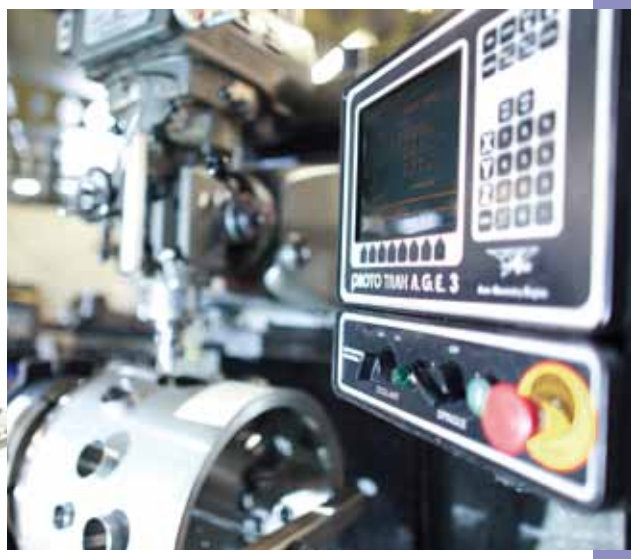
Precision port alignment for analysis chambers, integral cooling coils and all required components, such as electrical feedthroughs, manipulation equipment and gauges can be pre-assembled and tested.

Processing and Testing

All chambers undergo thorough processing and testing during and after manufacture and are 100% independently inspected. We have the ability to produce plotted inspection reports using our measuring arm and associated software, on request. Smaller items can be checked on our CMM, inspection printout which is also available on request.

Cleaning

Cleaned to HV or UHV application, with cleaning through our automated cleaning plants or with a hot steam wash process and air bake as standard. Baking facilities, up to two metres diameter. On request, we can blank off the chambers, pump and bake under vacuum with RGA printout supplied.



KF FLANGES AND FIXINGS

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BFX25K13 22
BFX25K25 22
BFX25K50 22
BFX40K100 22
BFX40K13 22
BFX40K25 22
BFX40K50 22
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