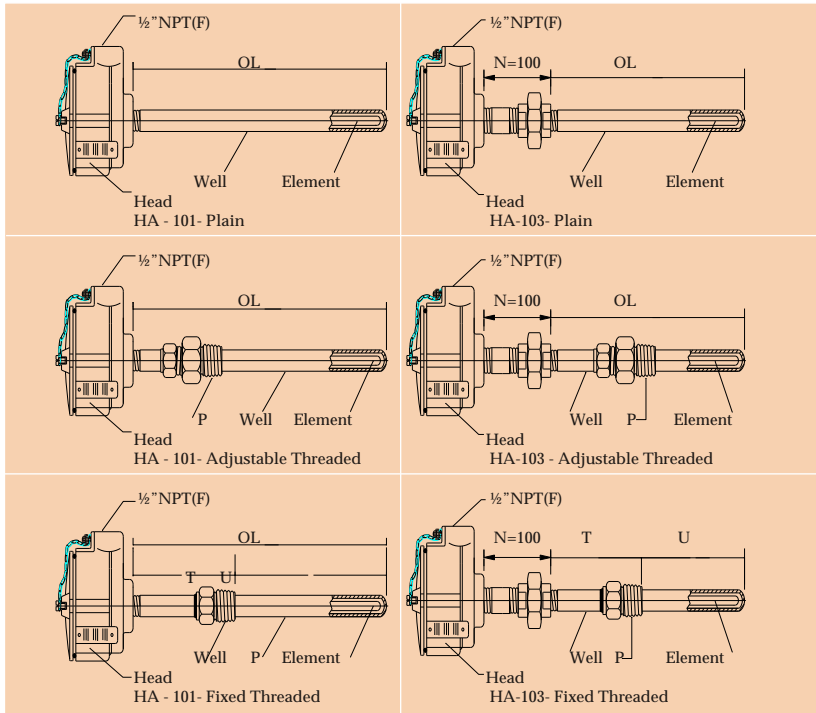


600 Series

*Thermocouple & Resistance
Thermometer Assemblies with*

- A Protective Tube.
- Built up from seamless tubes, plain or threaded connection.
- Flameproof or Weatherproof execution in SS316 or Aluminum.
- Available with "in-head" 2-wire Temperature Transmitter.



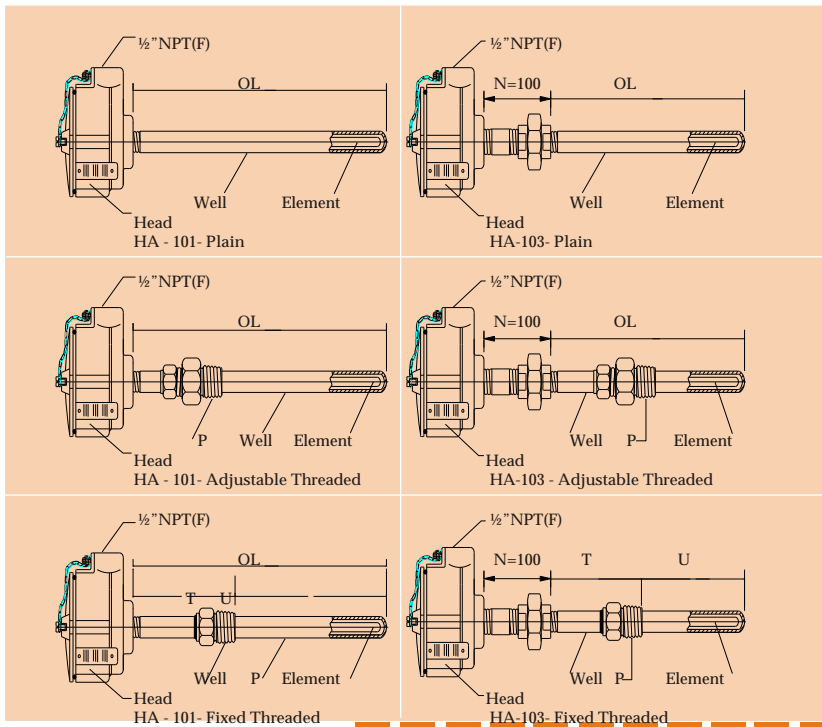
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1	Simplex	0	None																												
2	Duplex	1	Head in 304SS																												
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ORDERING EXAMPLE
600 SERIES 1-K-6-316-D-1-HA101-316-1/2"Sch160-U=640-T=30-FT-1"NPT-Op0

601 Series

Thermocouple & Resistance Thermometer Assemblies with

- A Solid, closed end Protective Tube.
- Made from drilled bar stock, plain or adjustable or welded(Fixed) threaded connection.
- Flameproof or Weatherproof execution in SS316 or Aluminum.
- Available with “in-head” 2-wire Temperature Transmitter.



Code	No of Elements
1	Simplex
2	Duplex
3	Triplex

Code	Elements
J	Iron-Constantan
K	Chromel-Alumel
T	Copper-Constantan
E	Chromel-Constantan
N	Nicrosil-Nisil
R	PtRh 13%-Pt
S	PtRh 10%-Pt
B	PtRh30%-PtRh6%
Pt	Pt100 RTD

Code	Sheath Dia
6	6mm
8	8mm
10	10mm

Code	Sheath Material
316	316SS
321	321SS
Inc	Inconel 600

Code	Head T ype
D	Weatherproof
F	Flameproof IIA/IIB
C	Flameproof IIC
JB	Junction Box

Code	No of entries
1	One entry
2	Two entries

Code	Head Assembly
HA101	Head only
Ha103	Head with Nipple & Union

Code	Options
0	None
1	Head in 304SS
2	Head in 316SS
3	Extension in 304SS
4	Other Conduit entry
6	In Head Transmitter
7	Brass Cable Gland
8	SS Cable Gland
10	Special requirement

Code	'P'
FT	Fixed Threaded
AT	Adjustable Threaded
PL	Plain(None)

Define Thread details

Code	Well Extension
T	Define
X	Not Applicable.

Code	Well Insertion
U	Define
OL	Define Overall length.

Code	Well 'OD'
01	10
02	14
03	17
04	19
05	22
06	26
07	33

Other dimensions are also available.

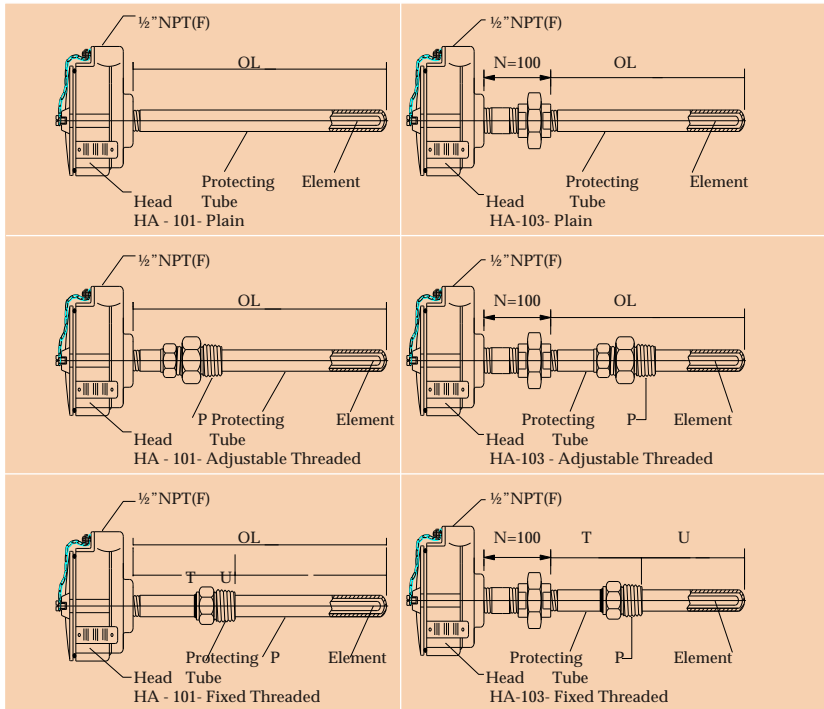
Code	Well Material
316	316SS
304	304SS
321	321SS
446	446SS

ORDERING EXAMPLE
601 SERIES 1-K-6-316-D-1-HA101-316-05-U=640-T=30-FT-1"NPT-Op3

602 Series

*Thermocouple & Resistance
Thermometer Assemblies with*

- A Twin, closed end Protective Tubes.
- Plain or adjustable or welded(Fixed) threaded connection.
- Flameproof or Weatherproof execution in SS316 or Aluminum.
- Available with "in-head" 2-wire Temperature Transmitter.



Code	Thermocouple T type		
MI	Mineral Insulated & Metal Sheathed.		
BE	Thermocouple element insulated Withceramic Tube(beaded type)		
Code	No of Elements		
1	Simplex		
2	Duplex		
Code	Elements		
K	Chromel-Alumel		
N	Nicrosil-Nisil		
R	PtRh 13%-Pt		
S	PtRh 10%-Pt		
B	PtRh30%-PtRh6%		
Code	Sheath Dia for MI	Code	Wire Dia For EE
3	3.0mm	24	24AWG
4.5	4.5mm	20	20AWG
6.0	6.0mm	18	18AWG
8.0	8.0mm	16	16AWG
10	10mm	14	14AWG
12	12mm	08	8AWG
Code	Sheath Material		
Inc	Inconel 600		
X	None		
Code	Head Type		
D	Weatherproof		
F	Flameproof IIA/IIB		
C	Flameproof IIC		
JB	Junction Box		
Code	No of entries		
1	One entry		
2	Two entries		
Code	Head Assembly		
HA101	Head only		
Ha103	Head with Nipple & Union		

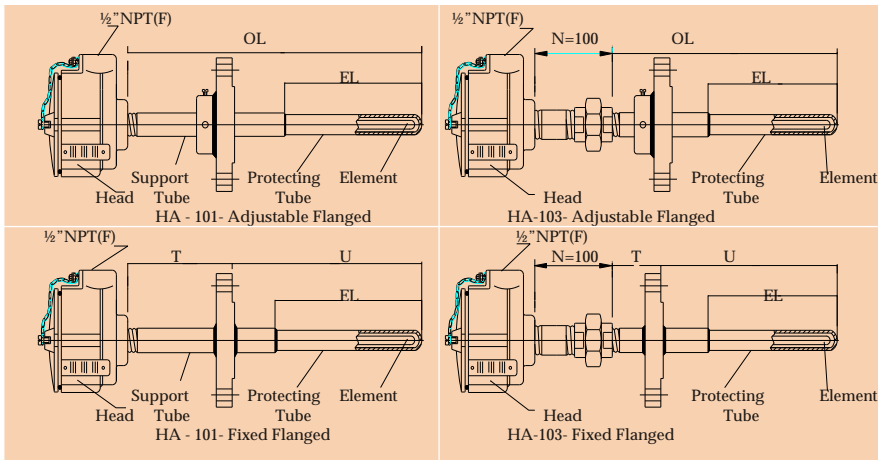
Code	Options
0	None
1	Head in 304SS
2	Head in 316SS
3	Extension in 304SS
4	Other Conduit entry
6	In Head Transmitter
7	Brass Cable Gland
8	SS Cable Gland
10	Special requirement
Code	'P'
FT	Fixed Threaded
AT	Adjustable Threaded
PL	Plain(None)
Define Thread details	
Code	Well Extension
T	Define
X	Not Applicable.
Code	Well Insertion
U	Define
OL	Define Overall length.
Code	Outer Protecting T ube
710	Recrystallized Alumina
610	Pythagoras
AF	Kanthal AF
APM	Kanthal APM
446	SS446
Define dimensions	
Code	Inner Protecting T ube
Ker 710	Recrystallised Alumina
Ker 610	Pythagoras
Dimension 15x2.5 or 12x2	

ORDERING EXAMPLE

602 SERIES BE-1-S-24-X-F-1-HA101-KER710(12x8)-446(21.3x2.65)-OL=1500-X-AT(1"NPT)-Op2

611 Series Thermocouple & Resistance Thermometer Assemblies with

- A Protecting tube of ceramic.
- Metallic support tube with fixed or adjustable flange.
- Flameproof or Weatherproof execution in SS316 or Aluminum.
- Available with "in-head" 2-wire Temperature Transmitter.



A Mineral insulated, metal sheathed Thermocouple or Thermocouple element insulated with re-crystallized alumina tube fitted into a terminal head & provided with or without head extension, a support tube and re-crystallized Alumina protecting fitted tube would form a typical assembly for temperature measurements of furnaces, combustion chambers, recuperators and similar applications.

The closed end Protecting tube normally employed is re-crystallized Alumina Type 710 containing 99.7% Aluminium oxide & conforming to Type 799 as per DIN VDE 0335 & can be used for temperatures upto 1700 Deg C. These tubes are impervious and are fixed to metallic support tube by means of ceramic to metal cement.

The low cost option is Pythagoras Tubes, Type 610 containing approximately 60% Aluminium Oxide as per DIN VDE 0335 & can be used for temperatures upto 1400deg C. The standard execution as shown in this leaflet is with plated CS extension and Aluminum head with conduit entry of 1/2"NPT

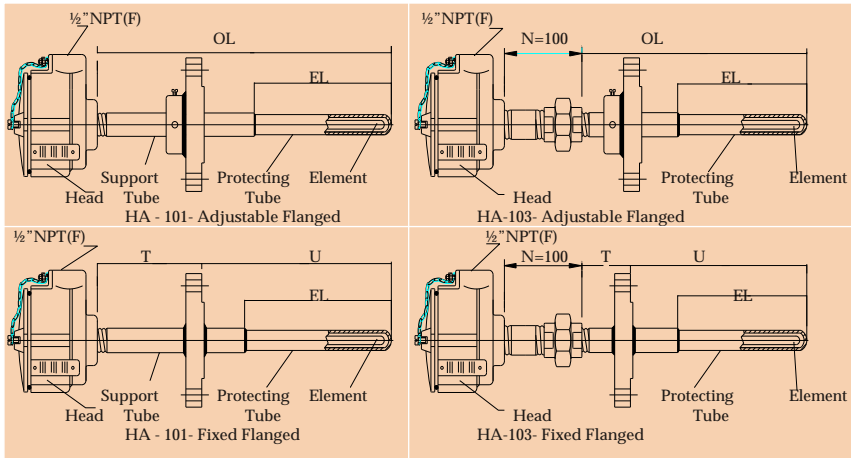
The Thermocouple wire size when used as a beaded thermocouple is 24AWG (0.51mm) for type 'R', 'S' and 'B' & 14AWG for all base metal Thermocouples.

Code	Thermocouple Type	Code	Options
MI	Mineral Insulated & Metal Sheathed.	0	None
BE	Thermocouple element insulated	1	Head in 304SS
Code	No of Elements	2	Head in 316SS
1	Simplex	3	Extension in 304SS
2	Duplex	4	Other Conduit entry
Code	Elements	6	In Head Transmitter
K	Chromel-Alumel	7	Brass Cable Gland
N	Nicrosil-Nisil	8	SS Cable Gland
R	PtRh 13%-Pt	10	Special requirement
S	PtRh 10%-Pt	Code	Flange details
B	PtRh30%-PtRh6%	FF	Fixed Flanged
Code	Sheath Dia for MI	Code	WireDia For BE
3	3.0mm	24	24AWG
4.5	4.5mm	20	20AWG
6.0	6.0mm	18	18AWG
8.0	8.0mm	16	16AWG
10	10mm	14	14AWG
12	12mm	08	8AWG
Code	Sheath Material	Code	Extension Length
Inc	Inconel 600	T	Define
X	None	X	Not Applicable.
Code	Head Type	Code	Overall/insertion/exposed length
D	Weatherproof	U/EL	Define insertion & exposed length
F	Flameproof IIA/IIB	OL/EL	Define Overall & exposed length.
C	Flameproof IIC	Code	Flange Material
JB	Junction Box	A105	ASTMA105 (CS)
Code	No of entries	F316	ASTMA182 F316
1	One entry	Other materials are also available. Define grades	
2	Two entries	Code	Tube Dimension (ODxw/t)
Code	Head Assembly	6	6 x 1.0
HA101	Head only	8	8 x 1.5
Ha103	Head with Nipple & Union	10	10 x 2.0
Code	Support Tube	12	12 x 2.0
Inc8	Incoloy 800	15	15 x 2.5
446	446SS	20	20 x 2.5
Inc6	Inconel 600	24	24 x 3.0
310	310SS	Code	Protecting Tube
		Ker 710	Recrystallized Alumina
		Ker 610	Pythagoras
		Dimension 15x2.5 or 12x2	

ORDERING EXAMPLE
612 SERIES MI-2-R-6-Inc-D-2-310-KER710(15x2.5)-APM(26x2.9)-U=760-T=60-FF(1.5"150#RF)-Op4,10

612 Series Thermocouple & Resistance Thermometer Assemblies with

- A Twin, closed end Protective Tubes.
- Metallic support tube with fixed or adjustable flange.
- Flameproof or Weatherproof execution in SS316 or Aluminum.
- Available with "in-head" 2-wire Temperature Transmitter.



A Mineral insulated, metal sheathed Thermocouple or Thermocouple element insulated with re-crystallized alumina tube fitted into a terminal head & provided with or without head extension, a support tube and re-crystallized Alumina protecting tube covered with another ceramic or metal tube would form a typical assembly for temperature measurements of furnaces, combustion chambers, recuperators and similar applications.

The closed end Protecting tube normally employed is re-crystallized Alumina Type 710 containing 99.7% Aluminium oxide & conforming to Type 799 as per DIN VDE 0335 & can be used for temperatures upto 1700 Deg C. These tubes are impervious and are fixed to metallic support tube by means of ceramic to metal cement.

The low cost option is Pythagoras Tubes, Type 610 containing approximately 60% Aluminium Oxide as per DIN VDE 0335 & can be used for temperatures upto 1400deg C. The standard execution as shown in this leaflet is with plated CS extension and Aluminum head with conduit entry of 1/2"NPT

The Thermocouple wire size when used as a beaded thermocouple is 24AWG (0.51mm) for type 'R', 'S' and 'B' & 14AWG for all base metal Thermocouples.

Code	Thermocouple Type	Code	Options
MI	Mineral Insulated & Metal Sheathed.	0	None
BE	Thermocouple element insulated	1	Head in 304SS
Code	No of Elements	2	Head in 316SS
1	Simplex	3	Extension in 304SS
2	Duplex	4	Other Conduit entry
Code	Elements	6	In Head Transmitter
K	Chromel-Alumel	7	Brass Cable Gland
N	Nicrosil-Nisil	8	SS Cable Gland
R	PtRh 13%-Pt	10	Special requirement
S	PtRh 10%-Pt	Code	FlangeDetails
B	PtRh30%-PtRh6%	FF	Fixed Flanged
Code	Sheath Dia Code WireDia for MI For BE	AF	Adjustable Flanged
3	3.0mm 24 24AWG	Define Flange size, rating and facing	
4.5	4.5mm 20 20AWG	Code	Extension length
6.0	6.0mm 18 18AWG	T	Define
8.0	8.0mm 16 16AWG	X	Not Applicable.
10	10mm 14 14AWG	Code	Overall/insertion/exposed length
12	12mm 08 8AWG	U/EL	Define Insertion length
Code	Sheath Material	OL/EL	Define Overall length.
Inc	Inconel 600	Code	Flange Material
X	None	A105	ASTMA105 (CS)
Code	Head Type	F316	ASTMA182 F316
D	Weatherproof	Other materials are also available. Define grades	
F	Flameproof IIA/IIB	Code	Outer Protecting Tube
C	Flameproof IIC	710	Recrystallized Alumina
JB	Junction Box	610	Pythagoras
Code	No of entries	AF	Kanthal AF
1	One entry	APM	Kanthal APM
2	Two entries	446	SS446
Code	Head Assembly	Define dimensions	
HA101	Head only	Code	Protecting Tube
Ha103	Head with Nipple & Union	Ker 710	Recrystallized Alumina
Code	Support Tube	Ker 610	Pythagoras
Inc8	Incoloy 800	Dimension 15x2.5 br 12x2	
446	446SS		
Inc6	Inconel 600		
310	310SS		

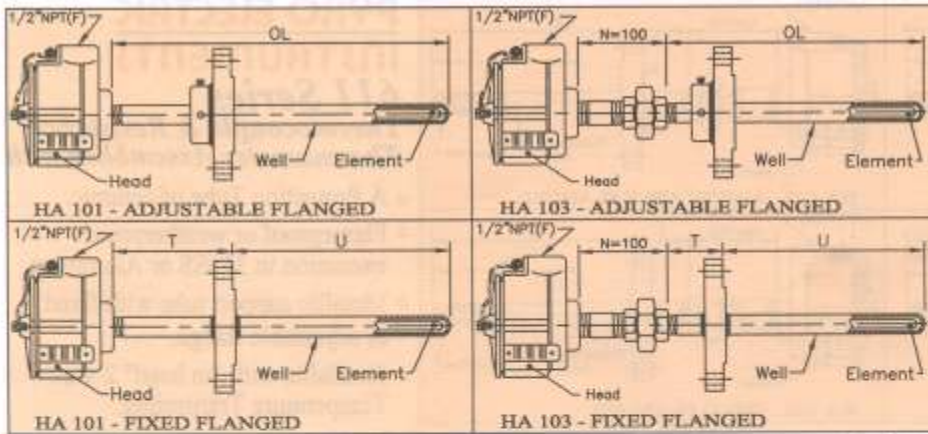
ORDERING EXAMPLE

612 SERIES MI-2-R-6-Inc-D-2-310-KER710(15x2.5)-APM(26x2.9)-U=760-T=60-FF(1.5"150#RF)-Op4,10

PYRO ELECTRIC INSTRUMENTS

610 Series Thermocouple & Resistance Thermometer Assemblies, with

- A Protecting Tube.
- Built up from seamless tubes, fixed or adjustable Flange.
- Flameproof or weatherproof execution in 316SS or Aluminum.
- Available with "in head" 2-wire Temperature Transmitter.



Ms Mi Thermocouple or Resistance Thermometer sensor fitted into a terminal head, and provided with or without head extension and a protecting tube would form a typical complete assembly ready for use in the applications, where flow and pressure are not a major concern.

Protecting tubes are built up from seamless tubes with hot end plugged and TIG welded and a blind Flange is drilled to suit the outer diameter of the tube and TIG welded to it. These are available in standard AISI 300 series stainless steels as well as, in exotic materials such as Incoloy 800, Inconel 600, 446 SS, and Flanges in ASTM grades A105, A182 and A350 in sizes 3/4" to 2" (DN 20 to DN 50).

The standard execution as shown in this leaflet is with plated CS extension and Aluminum head with conduit entry of 1/2"NPT and Thermocouples with ungrounded junction unless specified otherwise. Head Assembly HA-103 is with CS plated extension and N=150.

610 Series

Code	No of Elements
1	Simplex
2	Duplex
3	Triplex

Code	Elements
J	Iron-Constantan
K	Chromel-Alumel
T	Copper-Constantan
E	Chromel-Constantan
N	Nicrosil-Nisil
R	PtRh 13%-Pt
S	PtRh 10%-Pt
B	PtRh 30%-PtRh 6%
Pt	Pt 100 RTD

Code	Sheath Dia
6	6mm
8	8mm
10	10mm

Code	Sheath Material
316	316 SS
321	321 SS
Inc	Inconel 600

Code	Head Type
D	Weatherproof
F	Flameproof IIA/IIB
C	Flameproof IIC
JB	Junction Box

Code	No of Entries
1	One Entry
2	Two Entry

Code	Head Assembly
HA101	Head only
HA103	Head with Nipple & Union

Code	Well Material
A106	CS to A106 GrB
316	316 SS
304	304 SS
321	321 SS
446	446 SS

Code	Options
0	None
1	Head in 304 SS
2	Head in 316 SS
3	Extension in 304 SS
4	Extension in 316 SS
5	Other Conduit entry
6	In head Transmitter
7	Brass cable gland
8	SS Cable gland
10	Special requirement

Code	Flange size
FF	Fixed Flange
AF	Adjustable flange

Define flange size, rating and facing.

Code	Well Extension
T	Define extension
X	Not Applicable

Code	Well Insertion
U	Define insertion
OL	Define Overall length

Code	Flange Material
A105	ASTM A105(CS)
F304	A182 F304
F316	A182 F316

Other materials also available Define grade.

Code	Tube Dimensions OD x W/t
1/8"Sch80	10.29 x 2.41
1/4"Sch80	13.72 x 3.02
3/8"Sch80	17.15 x 3.18
1/2"Sch80	21.30 x 3.73
1/2"Sch160	21.30 x 4.75
3/4"Sch80	26.60 x 3.91
3/4"Sch160	26.60 x 5.53

Other dimensions also available.

ORDERING EXAMPLE

610 SERIES 1-K-6-316-D-1-HA 101-316-1/2"Sch160-F316-U=640-T=30-FF 32mm 150#RF-OPTION 3

PYRO ELECTRIC INSTRUMENTS GOA PVT.LTD.

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Tel : (022) 24461547 Tel/Fax : (022) 24459936 Cell: 38970341 Email : pyroelectric@isify.com Visit us at www.pyroelectricgoa.com

