
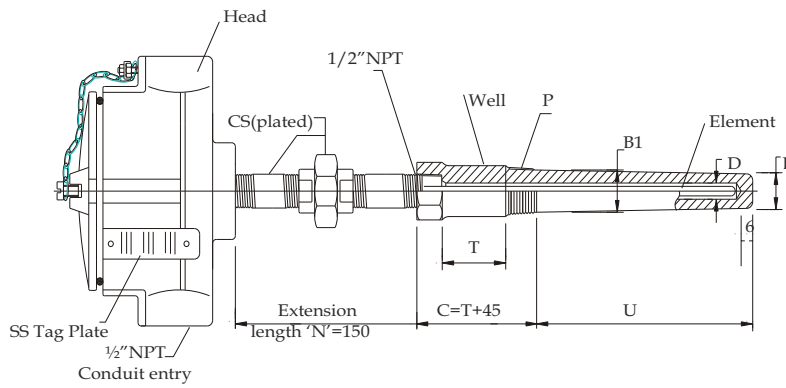


# 300# Series

## Thermocouple & Resistance Thermometer Assemblies with

- A Threaded tapered Thermowell.
- Certified for use in hazardous area. 
- Safe design as per ASME PTC19.3.
- Available with "in-head" 2-wire Temperature Transmitter.



Mi Thermocouple or Resistance Thermometer Sensor fitted into a terminal Head, and provided with head extension and drilled bar stock Thermowell would form a typical complete assembly ready for use in the application designed for. The design of the complete assembly depends on various parameters such as, temperature, dynamic pressure, flow velocity, abrasive nature of process fluid, intricate nature of installation and insertion lengths required.

Various designs are available as standard products, few of which are illustrated in this leaflet. We can design and manufacture assemblies, single/duplex as well as multipoint to suit practically every process. Thermowells are available in standard AISI 300 series Stainless Steel as well as exotic materials such as Incoloy 800, Inconel 600, Monel 400, Hastelloy alloys C276 and alloy B.

The standard execution as shown in this leaflet is with plated CS extension and Aluminum head with conduit entry of 1/2"NPT and ungrounded Junction for Thermocouples.

Code	No of Elements
1	Simplex
2	Duplex
3	Triplex

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

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	'd'
6	6mm	7.0mm
8	8mm	8.5mm
10	10mm	11.0mm

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

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

Code	Well Extension
T	Define

Code	Well Insertion
U	Define

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

Code	No of entries
1	One entry
2	Two entries

Process Conn P	B1	B
1/2"NPT	17	12.5
3/4"NPT	22	16
1"NPT	25	19
M33x2	28	25


Other sizes and dimensions on request

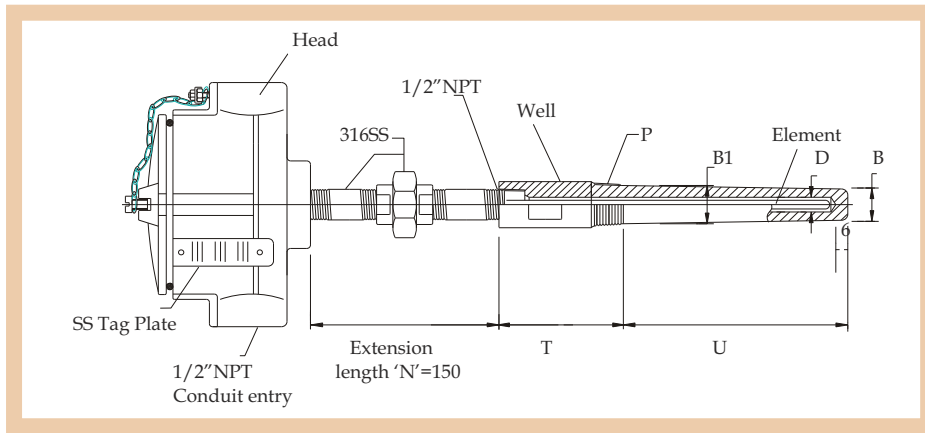
### ORDERING EXAMPLE

300# SERIES 1-K-6-316-D-1-316-U=150-T=50-1"NPT-Op 3,8

# 310# Series

## Thermocouple & Resistance Thermometer Assemblies with

- ENI Standard 0165.00 Threaded Thermowell.
- Certified for use in hazardous area. 
- Safe design as per ASME PTC19.3.
- Available with "in-head" 2-wire Temperature Transmitter.



Mi Thermocouple or Resistance Thermometer Sensor fitted into a terminal Head, and provided with head extension and drilled bar stock Thermowell as per ENI standard 0165.00, is ideally suited for use in Fertiliser plants, Refineries and Petrochemical complexes.

The assembly can be supplied with 316SS terminal head and nipple-union-nipple in 316SS as a standard feature in weatherproof or flameproof execution. This will resist atmospheric corrosion and help in carrying out periodic maintenance with more ease.

Heavy Duty well with process connection 1.5"NPT and tapered shank tapering from 38mm to 33mm is offered as a standard design for use on very high pressure application such as syngas compressor discharge.

Thermowells are available in standard AISI 300 series Stainless Steel as well as exotic materials such as Incoloy 800, Inconel 600, Monel 400, Hastelloy alloys C276 and alloy B.

Code	No of Elements
1	Simplex
2	Duplex
3	Triplex

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

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	'd'
6	6mm	7.0mm
8	8mm	8.0mm
10	10mm	10.0mm

Code	Well Extension
T	Define

Code	Well Insertion
U	Define

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

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

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

Code	No of entries
1	One entry
2	Two entries

Process Conn P	B1	B
1/2"NPT	17	12.5
3/4"NPT	22	16
1"NPT	25	19
M33x2	28	25
1 1/2"NPT	38	33


Other sizes and dimensions on request

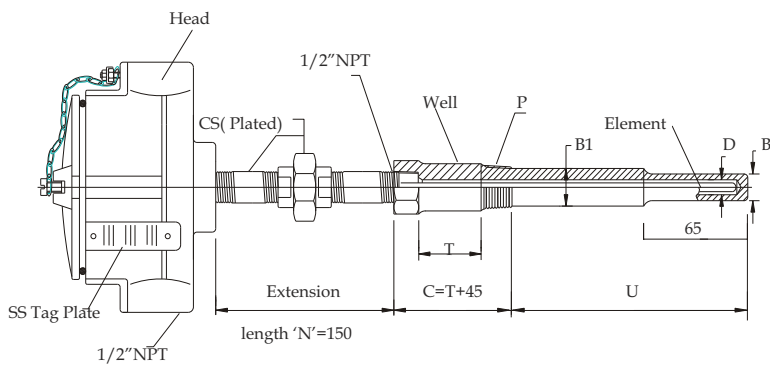
### ORDERING EXAMPLE

310# SERIES 1-K-6-316-D-1-316-U=150-T=75-1"NPT-Op 4

# 320# Series

## Thermocouple & Resistance Thermometer Assemblies with

- A Threaded stepped shank or straight shank well.
- Certified for use in hazardous area. 
- Safe design as per ASME PTC19.3.
- Available with "in-head" 2-wire Temperature Transmitter.



Mi Thermocouple or Resistance Thermometer Sensor fitted into a terminal Head, and provided with head extension and drilled bar stock Thermowell would form a typical complete assembly ready for use in the application designed for.

Various designs are available as standard products, few of which are illustrated in this leaflet. We can design and manufacture assemblies, single/duplex as well as multipoint to suit practically every application.

Thermowells are available in standard AISI 300 series Stainless Steel as well as exotic materials such as Incoloy 800, Inconel 600, Monel 400, Hastelloy alloys C276 and alloy B.

The standard execution as shown in this leaflet is with plated CS extension and Aluminum head with conduit entry of 1/2"NPT and stepped shank Thermowell. Specify Option 9 for thermowell with straight shank. The Thermocouple junctions are ungrounded unless otherwise specified.

Code	No of Elements
1	Simplex
2	Duplex
3	Triplex

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

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	Process Conn P	B1	B
	1/2"NPT	17	12.5
	3/4"NPT	22	16
	1"NPT	25	19
	M33x2	28	25

Other sizes and dimensions on request

Code	Well Extension
T	Define

Code	Well Insertion
U	Define

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

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

Code	Sheath Dia 'd'
6	6mm 7.0mm
8	8mm 8.0mm
10	10mm 10.0mm

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

Code	Well Extension
T	Define

Code	Well Insertion
U	Define

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


Code	No of entries
1	One entry
2	Two entries

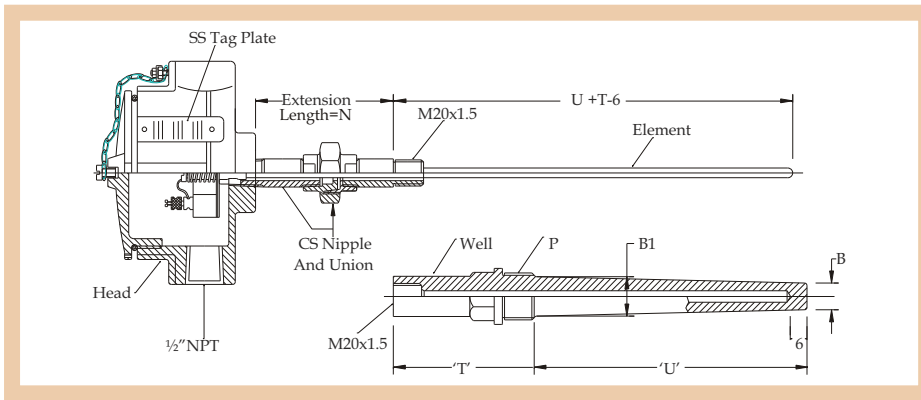
  

**ORDERING EXAMPLE**  
320# SERIES 1-K-6-316-D-1-316-U=150-T=50-1"NPT-Op 3,8

# 330 Series

## Thermocouple & Resistance Thermometer Assemblies with

- A Threaded tapered Thermowell.
- Certified for use in hazardous area. 
- Safe design as per ASME PTC19.3.
- Available with "in-head" 2-wire Temperature Transmitter.



Mi Thermocouple or Resistance Thermometer Sensor fitted into a terminal Head, and provided with head extension and drilled bar stock Thermowell would form a typical complete assembly ready for use in the application designed for. The design of the complete assembly depends on various parameters such as, temperature, dynamic pressure, flow velocity, abrasive nature of process fluid, intricate nature of installation and insertion lengths required.

ASME performance Test code PTC 19.3 gives a basis for arriving at a design of thermowell for use on pipings carrying process fluids. We recommend that insertion lengths are checked for safe design as per ASME PTC19.3.

The assembly shown in this leaflet is typical for Power plants for use on steam and water services.

Thermowells are available in standard AISI 300 series Stainless Steel such as 316SS, 304SS and 321SS.

The standard execution as shown in this leaflet is with plated CS extension and Aluminum head with conduit entry of 1/2"NPT and well entry of M20x1.5. Assemblies with longer extension length to locate cold end termination away from installation can be supplied. Specify code 10 and requirement of extension length. The thermocouple junctions are ungrounded unless specified otherwise.

Code	No of Elements
1	Simplex
2	Duplex
3	Triplex

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

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	Head Extension
N	Define

Code	Well Extension
T	Define

Code	Well Insertion
U	Define

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

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

Code	Sheath Dia	'd'
6	6mm	7.0mm
8	8mm	8.5mm
10	10mm	11.0mm

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

Code	Process Conn P	B1	B
	1/2"NPT	17	12.5
	3/4"NPT	22	16
	1"NPT	25	19
	M33x2	28	25

Other sizes and dimensions on request

Code	No of entries
1	One entry
2	Two entries

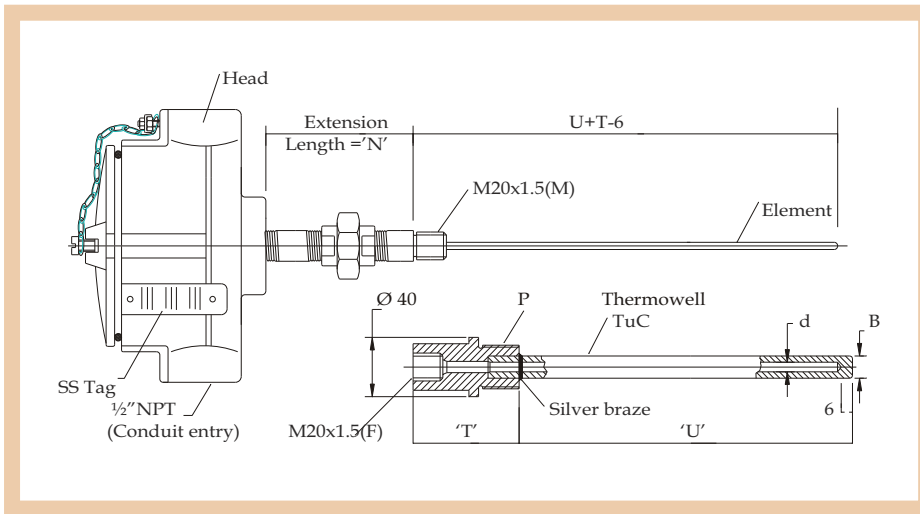
### ORDERING EXAMPLE

330# SERIES 1-K-6-316-D-1-316-U=150-T=100-N=100-1"NPT-Op 3,8

# 340# Series

## Thermocouple & Resistance Thermometer Assemblies with

- Solid Sintered Tungsten Carbide Thermowell for mill Classifier Outlet.
- Recrystallized Silicon Carbide for use on high temperature and abrasive services.
- Certified for use in hazardous area 
- Available with "in-head" 2-wire Temperature Transmitter.



Mi Thermocouple or Resistance Thermometer Sensor fitted into a terminal Head, and provided with head extension and solid sintered Tungsten carbide Thermowell would form typically, a complete assembly for use in Power Plants for highly abrasive services such as mill classifier outlet for temperature measurement of Coal + Air Mixture.

For use at relatively high temperatures we recommend re-crystallized Silicon Carbide, which also has a very high abrasion resistance characteristics. These are recommended for use in Flue gas application in power plants or for use on incinerators employed in modern day waste management systems of process plants. Standard well is available in diameter of 20mm; and is cemented into stainless steel bushing.

The standard execution as shown in this leaflet is with plated CS extension and Aluminum head with conduit entry of 1/2"NPT and well entry of M20x1.5.

Code	No of Elements	Code	Options	
1	Simplex	0	None	
2	Duplex	1	Head in 304SS	
3	Triplex	2	Head in 316SS	
		3	Extension in 304SS	
		4	Extension in 316SS	
		5	Other Conduit entry	
		6	In Head Transmitter	
		7	Brass Cable Gland	
		8	SS Cable Gland	
		10	Special requirement	
Code	Elements	Process Conn P	d	B
J	Iron-Constantan	1"NPT	7	16
K	Chromel-Alumel	M33x2	7	16
T	Copper-Constantan	Other sizes and dimensions are d=9, B=19 For SiC well d=10, B=20		
E	Chromel-Constantan			
N	Nicrosil-Nisil			
R	PtRh 13%-Pt			
S	PtRh 10%-Pt			
B	PtRh30%-PtRh6%			
Pt	Pt100 RTD			
Code	Sheath Dia	'd'		
6	6mm	7.0mm		
8	8mm	8.5mm		
10	10mm	110mm		
Code	Sheath Material	Code	Head Extension	
316	316SS	N	Define	
321	321SS	Code	Well Extension	
Inc	Inconel 600	T	Define	
Code	Head Type	Code	Well Insertion	
D	Weatherproof	U	Define	
F	Flameproof IIA/IIB	Code	Well Material	
C	Flameproof IIC	TuC	Tungsten Carbide	
JB	Junction Box	SiC	Silicon Carbide	
Code	No of entries			
1	One entry			
2	Two entries			

### ORDERING EXAMPLE

340# SERIES 1-K-6-316-D-1-TuC-U=150-T=100-N=100-M33x2-Op 1,7