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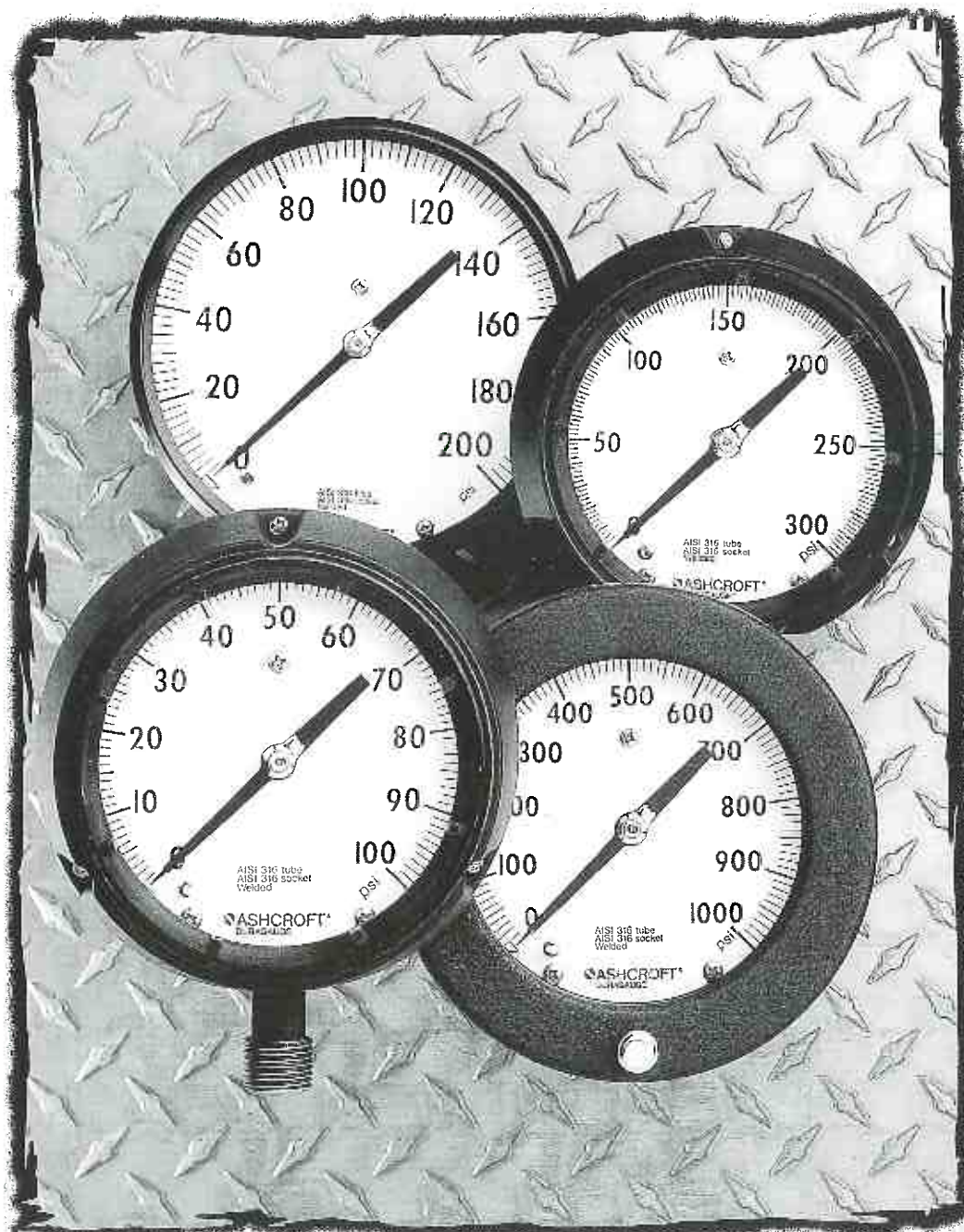
压力表、测试表
、隔膜封

PRESSURE GAUGES
TEST GAUGES
DIAPHRAGM SEAL



ASHCROFT®

Duragauge® Pressure Gauge



INSTRUMENT DIVISION **DRESSER**

STRAITFORD OPERATIONS

BULLETIN DU-1

Features & Benefits

Ashcroft Duragauge® Pressure Gauge

纤维壳压力表

The Ashcroft® Duragauge® pressure gauge is the finest production gauge on the market for industrial use where precise indications are required. The product line offers a wide variety of case styles, bourdon tubes and pressure ranges to meet your application needs.

With the component combinations available in the Duragauge gauge line, over ten million variations are possible to serve the needs of all types of industries, including process, power, nuclear, aerospace and cryogenics.

The Duragauge gauge offers the same outstanding quality and craftsmanship which have characterized all Ashcroft products since Edward Ashcroft introduced the bourdon tube pressure gauge to American Industry in 1852. It is built for long life and sus-

tained accuracy under the most adverse operating conditions.

Uncompromising standards have been established for all incoming materials used in Ashcroft products, with dimensional details, material selection and design carefully scrutinized. Tubing used in manufacturing bourdon tubes must meet stringent standards, more restrictive than ASTM material specifications. Throughout production, quality assurance procedures are adhered to, including assembly inspection, and critical laboratory examination.

Product integrity is assured through continual monitoring of pressure element quality. Every bourdon tube system is subjected to a leak test at a pressure above the top of its range. Computer programs yield bourdon tube

designs with minimum stresses, assuring the long life and sustained accuracy demanded of Ashcroft products. In the engineering breakdown lab, a variety of tests are run continually on Duragauge bourdon tube systems, such as pulsation, burst, vibration, wear, and friction tests on movements.

Care and attention are given to every product from its inception to final assembly. The end result; thoroughly engineered instruments that assure the user a product that is precise, dependable and durable.

Ashcroft has pioneered the field of gauge manufacture in research and product integrity since the bourdon tube was introduced to American industry. The list of Ashcroft "firsts" in pressure gauge development would fill several

**Solid front case design,
field convertible to her-
metically sealed or liquid
filled style.**

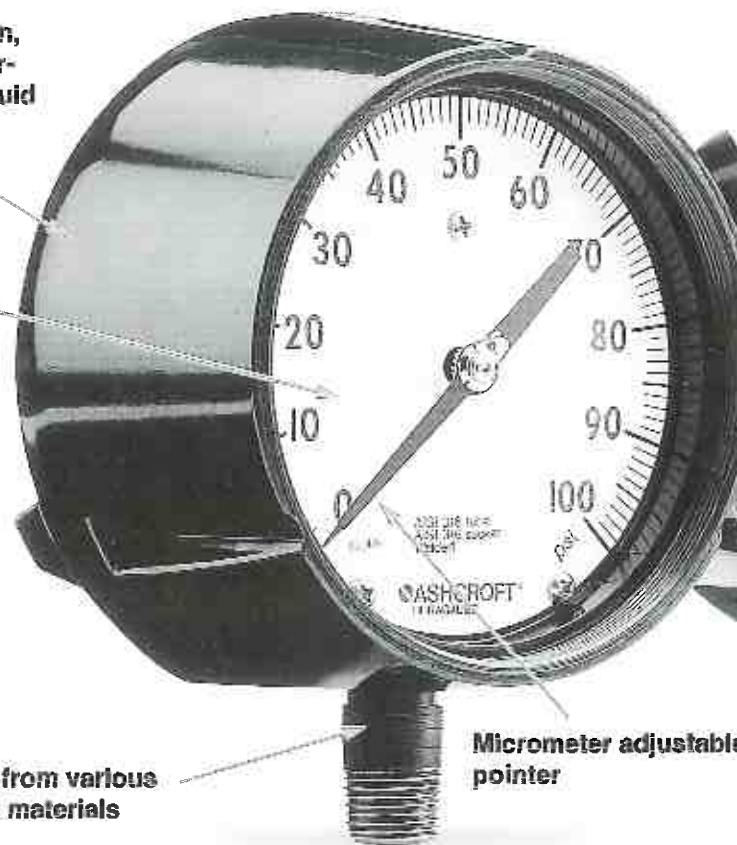
**Pressure ranges from
Vacuum-100,000 psi**

**Select from various
socket materials**

**Micrometer adjustable
pointer**

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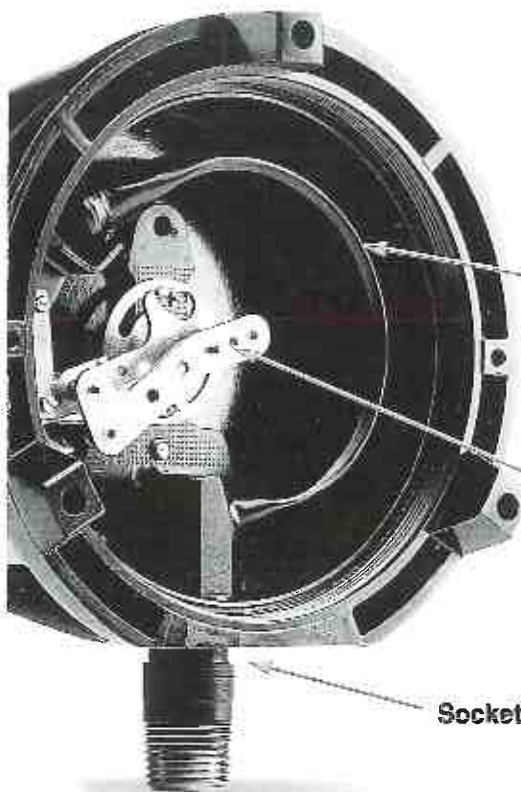
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pages. They include the rotary geared stainless steel movement, the all 316 stainless steel pressure system, the phenolic turret case, and numerous other improvements. The Ashcroft Duragauge is available in four case styles to suit your application needs.

Several important variables must be considered when selecting the type of case for the application. A gauge is subject to environmental and atmospheric conditions, and the gauge internals must be protected from these elements. To protect the gauge from environmental and atmospheric conditions, the 1279, 1377 and 1379 Duragauges are offered with a standard weatherproof

type case. A 4½" 1279 and 4½" or 6" 1379 Duragauge can be ordered hermetically sealed or liquid filled from the factory, or they can be converted in the field to these case styles using a conversion kit.



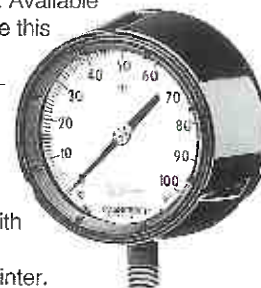
Select from a variety of bourdon tube materials

Rotary geared staked movement

Socket "O" ring standard

1279 Case style

The Ashcroft solid front phenolic case 1279 gauge can be hermetically sealed or liquid filled. Available in 4½" dial size this gauge has a threaded reinforced polypropylene front ring for easy zero adjustment with a micrometer adjustable pointer.



1377 Case style

Designed particularly for flush mounting, the Ashcroft model 1377 is available in 4½", 6", & 8½" dial sizes. The hinged steel black wrinkle enamel coated ring makes this gauge well suited for panel board applications.



1379 Case style

Available in 4½", 6", & 8½" sizes. The Ashcroft model 1379 solid front gauge has a black epoxy coated aluminum case with a threaded reinforced polypropylene ring. This weatherproof gauge can be liquid filled or hermetically sealed.



2462 Case style

This high impact resistant polypropylene case gauge and bayonet lock black ring is available with a 6" dial. This Duragauge can be stem, surface, or flush mounted and stands up well in most environments.



Warranty & Movement

Ashcroft Duragauge® Pressure Gauge

纤维壳压力表

Edward Ashcroft introduced the bourdon tube pressure gauge to American industry 140 years ago. Since that time, we have developed thousands of improvements and over a hundred patents furthering the development of Ashcroft pressure instruments. From the very beginning, we have maintained our reputation for quality, product performance, and technical innovation that is the envy of all others in the industry. We are confident of our manufacturing processes and the design of our pressure gauge systems. So confident, that we guarantee the Duragauge pressure system to be free of leaks for 10 years when installed and operated with the recommendations outlined in ASME B40.1. Of course our standard 1 year warranty on materials, workmanship, and all other parts, is still in effect.

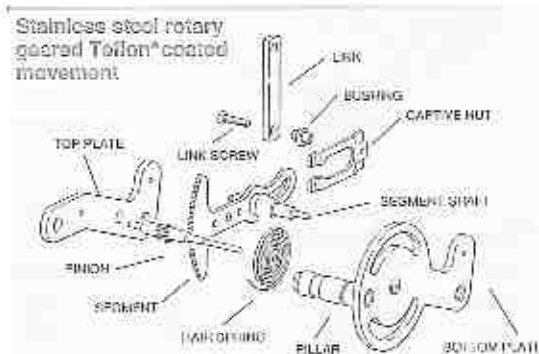
Millions of Ashcroft Duragauge pressure gauges continue to deliver proven performance in critical process applications throughout the world. You can depend on our commitment to quality – just what you've come to expect from the leader in pressure technology – the people who design, produce, and sell Ashcroft products. For a copy of our warranty call or write:
Dresser Instrument Division
250 East Main Street
Stratford, CT 06497-5145
203-378-8281
Ask for Customer Service.

The Ashcroft® Stainless Steel Rotary Geared Teflon® S Movement is another "first" in gauge manufacture. It is truly innovative with its thinner plates and segment, elimination of bushings, and low friction Teflon S coating on wearing parts. The shock resistance and stability of the Duragauge movement has been enhanced by staking the movement top and bottom plates.

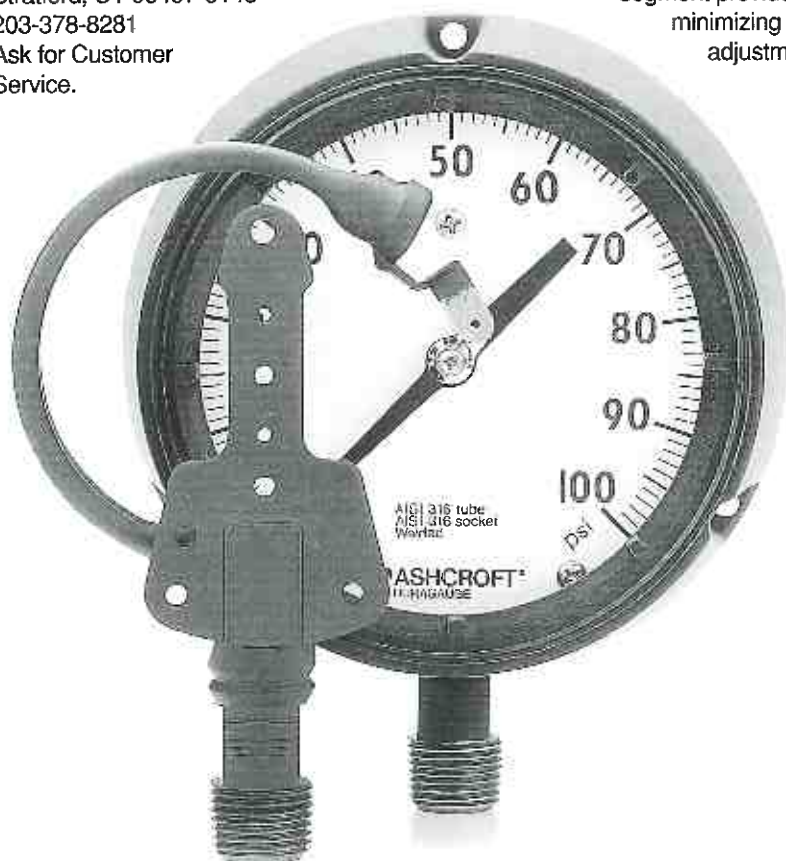
A Teflon S coating is applied to the pinion gear, pinion shaft, link screws and segment shaft. These critical components translate the motion of the bourdon tube tip into the rotating pointer motion. Minimal friction is essential for reduced wear.

The coating also serves to protect wear surfaces from outside ambient conditions.

A specially formulated lubricant is applied to all wear points. Wear is further reduced because the moving parts are light weight. The curved tail segment provides easy calibration by minimizing the effect of the span adjustment on zero.



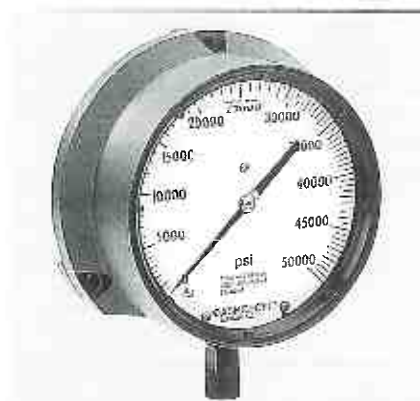
Teflon® - DuPont Trademark



Other Duragauge Types

Ashcroft Duragauge® Pressure Gauge

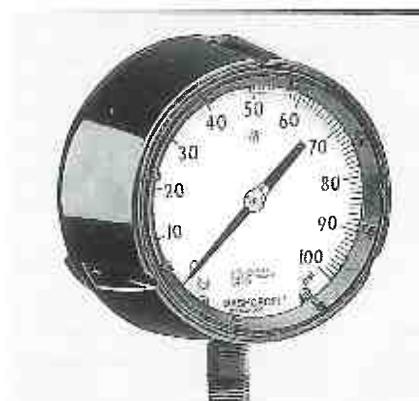
纤维壳压力表



High Pressure Duragauge

The Ashcroft high pressure Duragauge has a helical wound Inconel bourdon tube which is capable of withstanding vibration without a zero shift or change in calibration. Because of the length of the helical tube, stresses are minimized and the tip travel increased; this permits the use of a low ratio movement, which decreases wear from friction and increases gauge life. For use on high pressure test applications, metal and concrete water cutting equipment, and other high pressure applications.

Features of the gauge include ASME B40.1, grade 2A, $\frac{1}{2}$ of 1% full scale, 6" dial, lower or back connection, solid front aluminum case for wall or flush mounting. Inconel 718 bourdon tube and 316 stainless steel socket is standard. A hermetically sealed, field liquid fillable case is standard. The Ashcroft high pressure Duragauge is available in ranges of 50,000 psi, 80,000 psi, and 100,000 psi with a standard $\frac{1}{4}$ " high pressure tubing connection.

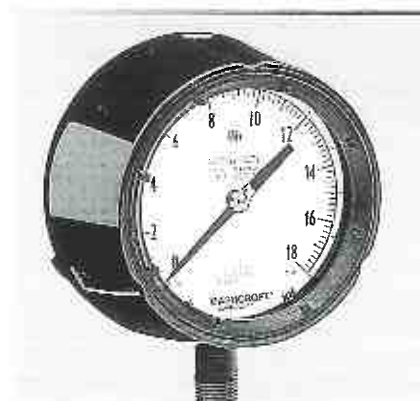


Liquid Filled Duragauge

Liquid filled Duragauges are recommended for applications where there is excessive vibration and pulsation. Vibration can cause rapid movement resulting in loss of accuracy and possibly complete destruction of the gearing. Pulsation can generate millions of pressure cycles causing bourdon tube fatigue and reduced service life. The Ashcroft patented elastomeric back provides compensation for ambient temperature variation while providing all the features of a blow-out back.

The liquid fill in the case continually bathes the movement in a lubricant, reducing wear and dampening excessive motion. The sealed case completely excludes dusty or corrosive environmental conditions. Since vibration and pulsation frequently occur together, all liquid filled Duragauges are fitted with a throttle plug screwed into the socket. This can easily be removed or changed for viscous or particulate containing media. Seven sizes are available from .006 to .070 diameter.

Gauges are normally filled with USP grade glycerin which is suitable for ambient temperatures from 0°F to 250°F (-18°C to +120°C). Silicone fill extends this range from -40°F to +250°F (-40°C to +120°C). Inert Halocarbon® fill is required for application on oxidizing media such as chlorine, oxygen, sulfuric or nitric acids. Operating temperatures are -50°F to +250°F (-45°C to +120°C).



Receiver Gauge Duragauge

Used in conjunction with pneumatic transmitters, Ashcroft receiver gauges indicate pressure, temperature, flow, or any information that can be transmitted by proportional variations in air pressure.

Receiver gauge dials are graduated in terms of the actual process variable, but operate on a transmitted low pressure air signal. Ashcroft Duragauge® receiver gauges are available in all Duragauge case styles with $4\frac{1}{2}$ ", 6" and 8" dial sizes. Receiver gauges are available in bronze (standard) or 316 stainless steel. Accuracy is 0.5% ASME, grade 2A.

To minimize the potential for misapplication of a receiver gauge or a false reading dial gauge, a statement relating to maximum input pressure appears in a box on the dial. A receiver gauge uses a low pressure bourdon tube with an input range of 3-15 psi or 3-27 psi and a dial graduated in flow, pressure, level, etc. (e.g., 3-15 psi input, dial graduated 0-100 psi). A false reading dial reads pressure, however, the actual pressure is from a source other than a transmitter and is not limited to low pressures. An example is 3-15 psi input with a dial graduated 0-3000 with no units.

For information concerning other receiver gauges offered, consult Customer Service, Stratford, Connecticut.

Specification Matrix

Ashcroft Duragauge®

Pressure Gauges

纤维壳压力表



Specifications	Code	Type 1279	Type 1377
Accuracy (ASME B40.1, Grade 2A)		½% Full Scale	½% Full Scale
Case style	(S)	Solid front (S)	Solid front (S)
Case material		Black phenolic	Aluminum, black epoxy coated
Dial size	(45), (60), (85)	4½", (4½)	4½", (45), 6", (60), 8½", (85)
Ring type		Threaded reinforced black polypropylene	Steel hinged black enamel coated
Bourdon tube		Grade A phosphor bronze	4130 Alloy steel 316 stain
Socket material		Brass silver brazed	4130 Alloy steel 1019
Code	(A), (B), (R), (S), (P), (WW)	(A) Available with all case types	(B) Available with all case types (R) Available wi
Range limits (psi)		Vacuum-1,000	Vacuum-20,000 Vacuum
Connection size (NPT)	(02), (04), (09)	¼ NPT(02 optional), ½ NPT(04 standard)	¼ NPT(02 optional), ½ NPT(04 standard)
Connection location	(L), (B)	Lower (L), back, (B)	Lower (L), back, (B)
Mounting		Stem, flush, surface	Stem, flush
Movement		Rotary, 400 st. st., Teflon® coated pinion gear & segment	Rotary, 400 st. st., Teflon® coated pinion gear & segment
Window		Glass	Glass
Pointer		Micrometer adjustable	Micrometer adjustable
Options			
Glycerin fill	(L)	Standard	N/A
Silicone fill	(XGV)	Available	N/A
Halocarbon fill	(XGX)	Available	N/A
Hermetically sealed	(H)	Available	N/A
Flush mounting ring	(X56)	Available	Standard
Surface mounting bracket	(XBF)	N/A	N/A
Flush mounting bracket	(XBQ)	N/A	N/A
Duragauge² receiver gauge	(XPR)	Available	Available
Shatterproof glass	(XSG)	Available	Available
Acrylic window	(XPD)	Available	Available
Set hand (red, single, fixed)	(XSH)	Available	Available
Maximum pointer (red)	(XEP)	Available	Available

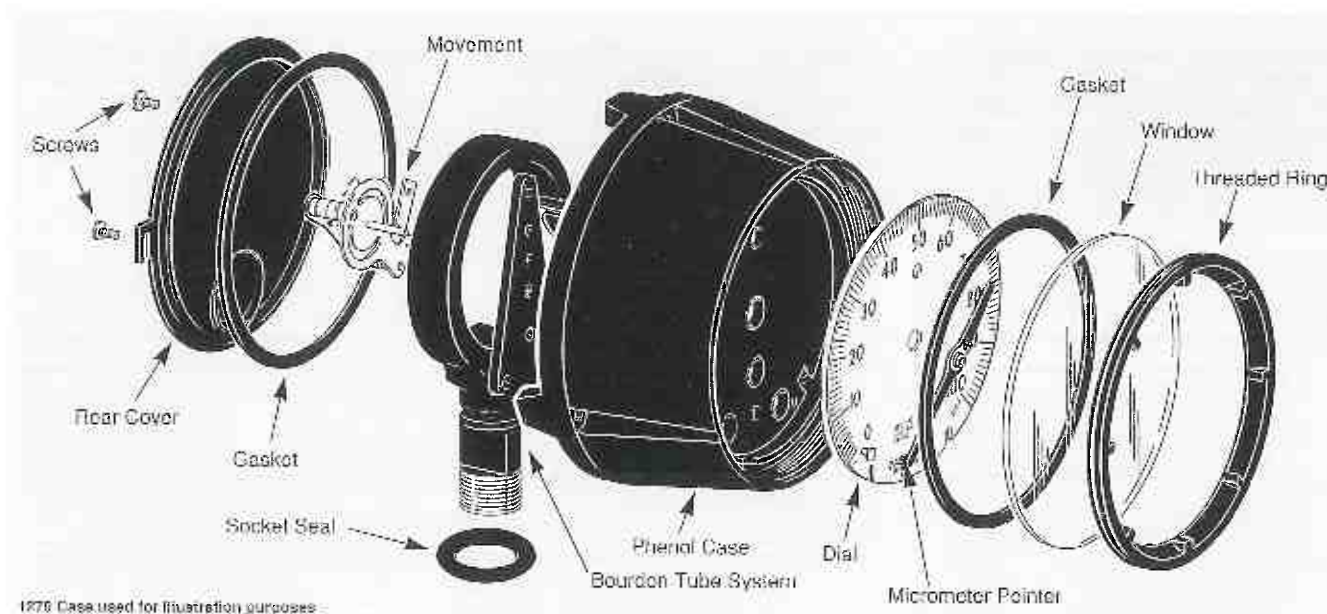


Type 1379		Type 2462	Type 1379 High pressure
1/2% Full Scale		1/2 % Full Scale	1/2% Full Scale
Solid front (S)		Solid front (S)	Solid front (S)
Aluminum, black epoxy coated		Black polypropylene	Aluminum, black epoxy coated
4 1/2" (45), 6" (60), 8" (85)		6", (60)	6", (60)
Threaded reinforced black polypropylene		Bayonet lock black polypropylene	Threaded reinforced black polypropylene
Loss steel	316 stainless steel	K Monel	Inconel 718
Steel	316 stainless steel	K Monel	316 stainless steel
With all case types	(S) Available with all case types	(P) Available with all case types	(WW)
1-5,000	Vacuum-20,000	Vacuum-30,000	50,000, 80,000, 100,000
1/4 NPT(02 optional), 1/2 NPT(04 standard)		1/4 NPT(02 optional), 1/2 NPT(04 standard)	1/4" High pressure (09 standard)
Lower (L), back, (B)		Lower (L), back, (B)	Lower (L), back, (B)
Stem, flush, surface		Stem, flush, surface	Flush, surface
Rotary, 400 st. st., Teflon® coated pinion gear & segment		Rotary, 400 st. st., Teflon® coated pinion gear & segment	Rotary, 400 st. st., Teflon® coated pinion gear & segment
Glass		Glass	Acrylic
Micrometer adjustable		Micrometer adjustable	Micrometer adjustable
Standard		N/A	Available
Available		N/A	Available
Available		N/A	Available
Available		N/A	Standard
Available		N/A	Available
N/A		Available	N/A
N/A		Available	N/A
Available		Available	N/A
Available		Available	Available
Available		Available	Standard
Available		Available	Available
Available		Available	Available

Product Selection Information

Ashcroft Duragauge® Pressure Gauge

纤维壳压力表



Consult ASME B40.1 for guidance in gauge selection

WARNING: To prevent misapplication, pressure gauges should be selected considering media and ambient operating conditions. Improper application can be detrimental to the gauge, causing failure and possible personal injury or property damage. The information contained in this catalog is offered as a guide to assist in making the proper selection of a pressure gauge. Additional information is available from Dresser Instrument Division.

Pressure Ranges:

As recommended by ASME B40.1, select a gauge with a full scale pressure range of approximately twice the normal operating pressure. The maximum operating pressure should not exceed approximately 75% of the full scale range. Failure to select a gauge range within these criteria may ultimately result in fatigue failure of the bourdon tube.

Operating Conditions:

The operating conditions to which a gauge will be subjected must be considered. If the gauge will be subjected to severe vibrations or pressure pulsation, liquid filling the gauge may be necessary to obtain normal product life. Other than discoloration of the dial and

hardening of the gasketing that may occur as ambient temperatures exceed 150°F, metal case Duragauges (that are not liquid filled) can withstand continuous ambient temperatures as high as 350°F. All gauges can withstand ambient temperatures up to 250°F. Accuracy will be affected by approximately 1.5% per 100°F. Gauges with welded joints will withstand 750°F (450°F with silver brazed joints) for short times without rupture, although other parts of the gauge will be destroyed and calibration will be lost. Proper selection of the bourdon system material is dependent on the process fluid to which the system will be subjected. If the correct material is not available, the use of a diaphragm seal may be necessary to protect the system from the process fluid. Liquid filled gauges are recommended for the discharge side of positive displacement pumps.

Pressure Elements:

Available in a wide variety of materials, including: phosphor bronze, alloy steel, 316 stainless steel, K Monel and Inconel.

Cases:

Four solid front case types are offered. Solid front cases have a solid wall between the bourdon tube and the window. The 1279 & 1379 Duragauge cases are field convertible by means of a kit. These gauges can be converted

to hermetically sealed or liquid filled. Buna-N seals at the front and rear of the case provide resistance to aggressive atmospheres.

Rings:

The ring, which retains the window, is threaded, bayonet (cam), or hinged, depending upon case type.

Movements:

Movements are designed and materials of construction selected to reduce friction and extend wear life. The Duragauge gauge's stainless steel movement is a rotary geared design with Teflon coated wear parts.

Dials:

Dials are uniformly graduated and have highly legible black markings. A pointer dial stop pin at the 7:00 o'clock position is standard.

Windows:

The standard is glass on dry gauges and acrylic on liquid filled gauges. Options are laminated safety glass, non-glare glass or acrylic.

Pointers:

Duragauge pressure gauges have balanced micrometer adjustable pointers which can be repositioned without removal from the pinion shaft.

Viton® - Teflon® - Kalrez® - Kynar® - DuPont Trademark
Carpenter 20® - Carpenter Steel Trademark
Inconel® - Monel® - Huntington Alloys Inc. Trademark
Hastelloy - Cabot Corp. Trademark
NickelP® - International Nickel Co., Inc. Trademark
Halocarbon® - Halocarbon Products Co. Trademark

Media Application Table

Ashcroft Duragauge® Pressure Gauge

纤维壳压力表

The media being measured must be compatible with the wetted parts of the pressure instrument. To use the chart below, locate the media whose pressure is to be measured and select a suitable material from those available. Diaphragm seal information is contained

in Bulletin DS-1. This is a simplified chart and assumes the media temperature is below 200°F except for media with an * which must be below 100°F. Throttling devices and/or a liquid filled instrument are recommended in applications with pulsation or vibration. These recommen-

dations are only a guide, as service life is dependent on temperature, concentrations, catalysts that may be added, or other conditions beyond our control. Consult Stratford, CT. customer service for specific applications and for any media not listed.

Media Application	Pressure Instrument Material				
	Brass or Bronze	Steel	Stainless steel	Ni-Cel	Diaphragm seals**
Acetone	*		*	*	
Acetic Acid <40%			*		
Acetic Anhydride					*
Acetylene (Dry)		*	*		
Acrolein 100%					*
Air	*	*	*	*	
Alcohol, Ethyl	*		*	*	
Alum. Chloride >10%					*
Alum. Sulfate 10-50%			*		
Ammonia Gas (Dry)		*	*		
Ammonium Chloride <40%					*
Ammonium Nitrate <50%			*		
Ammonium Sulfate <60%					*
Aniline >99%			*		
Argon	*	*	*	*	
Beer			*		
Benzidine >99%					*
Benzene <10%			*	*	
Benzoic Acid <70%					*
Boric Acid <25%			*		
Bromine (Dry)					*
Butane	*	*	*	*	
Butyric Acid <10%			*		
Calcium Chloride <80%					*
Calcium Hydroxide <50%					*
Carbon Dioxide	*	*	*	*	
Carbon Monoxide >99%	*	*	*	*	
Chlorine (Dry)					*
Chlorine (Moist)*					*
Chloroform (Dry)			*	*	
Chromic Acid					*
Citric Acid 10-50%			*		
Corn Oil			*		

Media Application	Pressure Instrument Material				
	Brass or Bronze	Steel	Stainless steel	Ni-Cel	Diaphragm seals**
Crude Oil (Sour)				*	
Crude Oil (Sweet)			*	*	
Ethyl Acetate	*		*	*	
Ethylene Oxide >99%	*	*	*	*	
Ferric Chloride <40%					*
Ferric Sulfate <10%*			*		
Ferrous Chloride <30%					*
Ferrous Sulfate <50%					*
Fluorine Gas (Dry)		*	*	*	
Formaldehyde <85%			*	*	
Formic Acid*					*
Iodine		*	*	*	
Furfural <10%					*
Gasoline		*	*	*	
Glycerin >98%	*	*	*	*	
Hydrobromic Acid					*
Hydrochloric Acid					*
Hydrofluoric Acid					*
Hydrofluosilic Acid					*
Hydrogen ①	*	*	*	*	
Hydrogen Peroxide <50%		*	*	*	
Kerosene	*	*	*	*	
Lactic Acid <70%*			*		
Magnesium Chloride <40%					*
Mercuric Chloride <60%					*
Mercury >99%		*	*	*	
Milk			*	*	
Naphtha >99%	*	*	*	*	
Naphthalene >99%			*	*	
Nickel Chloride >99%					*
Nitric Acid <25%*		*	*	*	
Nitrogen	*	*	*	*	
Oleic Acid	*				

Media Application	Pressure Instrument Material				
	Brass or Bronze	Steel	Stainless steel	Ni-Cel	Diaphragm seals**
Oxalic Acid *					*
Oxygen (Gas)②	*		*	*	
Palmitic Acid >99%*			*		
Phosphoric Acid <80%*			*		
Picric Acid <10%			*		
Propane (Dry)	*	*	*	*	
Sea Water (Flowing)				*	
Silver Nitrate <70%					*
Sodium Bicarbonate <20%			*	*	
Sodium Bisulfate <30%			*	*	
Sodium Carbonate <40%			*	*	
Sodium Chromate <60%	*	*	*	*	
Sodium Cyanide *		*	*	*	
Sodium Hydroxide <40%			*	*	
Sodium Hypochlorite <25%			*	*	*
Sodium Phosphate, Tri <60%	*	*	*	*	
Sodium Silicate <50%		*	*	*	
Sodium Sulfide <50%			*	*	*
Stannous Chloride <10%			*	*	*
Steam (Use siphon)	*	*	*	*	
Stearic Acid			*	*	
Sulfur Dioxide (Dry) >99%			*	*	*
Sulfur Trioxide (Dry) >99%			*	*	*
Sulfurous Acid			*	*	*
Tannic Acid <80%	*	*	*	*	
Tartaric Acid <50%			*	*	
Tin Chloride (ous) <10%			*	*	*
Toluene >99%	*	*	*	*	
Turpentine >98%	*	*	*	*	
Water (Tap)		*	*	*	
Whiskey		*	*	*	
Zinc Chloride <25%*			*	*	*
Zinc Sulphate <40%			*	*	*

① Over 1,000 psi—entire system must be 316 stainless steel.

② Bronze and 316 stainless steel are acceptable for oxygen service, provided the instrument has been cleaned for oxygen service and is free from oil.

* Below 100°F

** Any standard bourdon tube material may be used in conjunction with a diaphragm seal, but the gauge selection should take into consideration the corrosive environment in which it is to operate. For Diaphragm Seals See Bulletin DS-1.

Range Tables

Ashcroft Duragauge® Pressure Gauge

纤维壳压力表

Standard Ranges

Pressure – psi		
Range	Figure interval	Minor graduation
0/15	1	0.1
0/30	5	0.2
0/60	5	0.5
0/100	10	1
0/160	20	1
0/200	20	2
0/300	50	2
0/400	50	5
0/600	50	5
0/800	100	10
0/1,000	100	10
0/1,500	200	20
0/2,000	200	20
0/3,000	500	20
0/5,000	500	50
0/10,000	1,000	100
0/20,000	2,000	200
0/30,000	5,000	200
0/50,000	5,000	500
0/100,000	10,000	1,000
0/100,000	10,000	1,000

Compound				
Range	Figure interval		Minor graduation	
	in Hg	psi	in Hg	psi
30" Hg/15 psi	5	3	0.5	0.2
30" Hg/30 psi	10	5	1	0.5
30" Hg/60 psi	10	10	1	1
30" Hg/100 psi	10	10	2	1
30" Hg/150 psi	10	20	5	2
30" Hg/300 psi	30	25	5	2

Combination					
Range		Figure interval		Minor graduation	
Inner-psi	Outer-ft H ₂ O	psi	ft H ₂ O	psi	ft H ₂ O
0/15	0/34	3	5	0.5	0.5
0/30	0/70	5	10	0.5	1
0/60	0/140	5	20	0.5	5
0/100	0/230	10	20	1	2
0/160	0/370	20	50	2	5
0/200	0/460	20	50	5	5
0/300	0/690	25	100	5	10

Vacuum		
Range	Figure interval	Minor graduation
30/0 in Hg	5 in	0.2 in
34/0 ft H ₂ O	5 ft	0.5 ft

Retard		
Range	Figure interval	Minor graduation
0/15 psi retard to 30 psi	1 psi-30 psi	0.1 psi-5 psi
0/30 psi retard to 60 psi	2 psi-60 psi	0.2 psi-10 psi
0/60 psi retard to 100 psi	2 psi-100 psi	0.5 psi-10 psi
30" Hg vac/75 psi retard to 150 psi	5" Hg/15 psi-150 psi	1" Hg/1 psi-5 psi
10" Hg vac/5 psi retard to 30" Hg vac retard to 30 psi	2" Hg/1 psi-30" Hg-30 psi	0.2" Hg/0.1 psi-5" Hg-5 psi

Metric Ranges

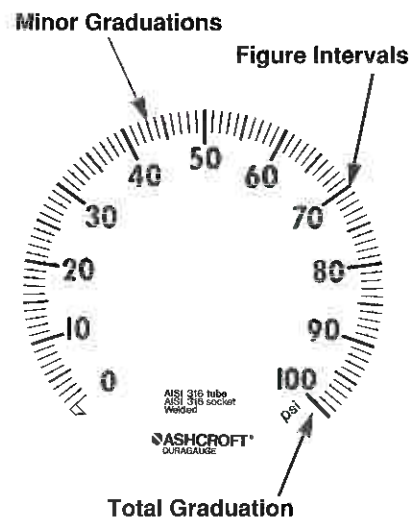
Pressure – kg/cm ² and bar			
Range	Figure interval	Minor graduation	Outer scale in psi
0/1	0.1	0.01	0/14
0/1.6	0.2	0.02	0/22
0/2.5	0.5	0.02	0/35
0/4	0.5	0.05	0/55
0/6	0.5	0.05	0/85
0/10	1	0.1	0/140
0/16	2	0.2	0/220
0/25	5	0.2	0/350
0/40	5	0.5	0/550
0/60	5	0.5	0/850
0/100	10	1	0/1,400
0/160	20	2	0/2,200
0/250	50	2	0/3,500
0/400	50	5	0/5,500
0/600	50	5	0/8,500
0/1,000	100	10	0/14,000
0/1,600	200	20	0/22,000
0/2,500	500	20	0/35,000
0/4,000	500	50	0/55,000
0/6,000	1,000	50	0/85,000

Compound – kg/cm ² and bar			
Range	Figure interval	Minor graduation	Outer scale in psi
-1/0/1.5	0.5	0.02	30" Hg/20
-1/0/3	0.5	0.05	30" Hg/40
-1/0/5	0.5	0.05	30" Hg/70
-1/0/9	1	0.01	30" Hg/125
-1/0/15	2	0.02	30" Hg/215
-1/0/24	5	0.02	30" Hg/340

Vacuum – kg/cm ² and bar			
Range	Figure interval	Minor graduation	Outer scale
-1/0	0.1	0.01	30" Hg

Graduations & figure intervals

All Ashcroft dials have various total graduation marks, figure intervals and minor graduations. Standard dual scale metric ranges have a dominant metric inner scale. The outer scale is specified in psi. Some examples are shown. Duragauge gauges are made in accordance with ASME B40.1 entitled, "Gauges, Pressure, Indicating Dial Type-Elastic Element", Accuracy grade 2A ($\pm 0.5\%$ of span). The accuracy of a retard range gauge applies only to the expanded portion of the scale. The error in the compressed portion is -10% to +20% of the span. Maximum pressure at which a gauge is continually operated should not exceed 75% of full scale range. Consult customer service in Stratford, CT. for non-standard dials.



Range Tables

Ashcroft Duragauge® Pressure Gauge

纤维壳压力表

Metric Ranges

Pressure — (kPa) kilopascal			
Outer scale	Range	Figure	Minor
	interval	graduation	in psi
0/100	10	1	0/14
0/160	20	2	0/22
0/250	50	2	0/35
0/400	50	5	0/55
0/600	50	5	0/85
0/1,000	100	10	0/140
0/1,600	200	20	0/220
0/2,500	500	20	0/350
0/4,000	500	50	0/550
0/6,000	500	50	0/850
0/10,000	1,000	100	0/1,400
0/16,000	2,000	200	0/2,200
0/25,000	5,000	200	0/3,500
0/40,000	5,000	500	0/5,500
0/60,000	5,000	500	0/8,500
0/100,000	10,000	1,000	0/14,000
0/160,000	20,000	2,000	0/22,000
0/250,000	50,000	2,000	0/35,000
0/400,000	50,000	5,000	0/55,000

Compound — (kPa) kilopascal			
Outer scale	Range	Figure	Minor
	interval	graduation	in psi
-1/0/1.5	0.5	0.02	30" Hg/20
-1/0/3	0.5	0.05	30" Hg/40
-1/0/5	0.5	0.05	30" Hg/70
-1/0/9	1	0.01	30" Hg/125
-1/0/15	2	0.02	30" Hg/215

Vacuum — (kPa) kilopascal			
Range	Figure	Minor	Outer scale
	interval	graduation	
-1/0	0.1	0.01	30" Hg

Receiver gauge

These ranges apply to any unit of pressure, temperature, liquid level, flow, or other value specified. Units in psi pressure will be denoted on the dial unless specified. Available with input ranges of 3-15 psi or 3-27 psi.

Receiver Gauge Ranges

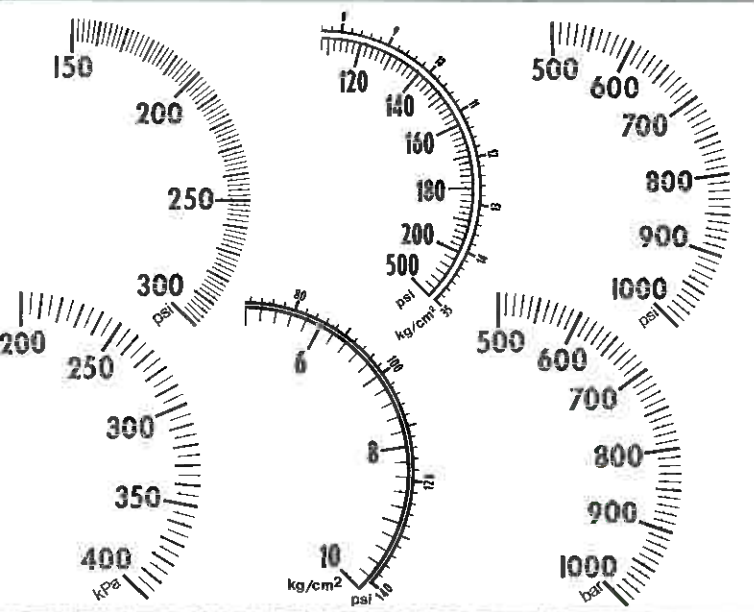
0/1	0/75	30/80	100/600
0/2	0/80	5/110	200/700
0/3	0/85	20/120	100/800
0/4	0/90	40/120	200/800
0/5	0/95	20/150	300/800
0/6	0/100	30/150	400/800
0/7	0/120	40/150	450/800
0/8	0/140	50/150	500/800
0/9	0/160	30/180	850/800
0/10	0/180	130/180	200/900
0/11	0/200	100/200	400/900
0/12	0/250	20/220	700/900
0/14	0/300	40/220	200/1,000
0/15	0/350	30/240	400/1,000
0/16	0/400	100/240	500/1,000
0/17	0/500	30/250	600/1,000
0/18	0/600	50/250	800/1,000
0/19	0/700	100/250	200/1,100
0/20	0/760	30/300	400/1,200
0/21	0/800	50/300	500/1,200
0/25	0/900	80/300	600/1,200
0/26	0/1,000	100/300	1,000/1,500
0/28	0/1,500	50/350	300/1,600
0/30	0/2,000	80/350	1,000/1,600
0/35	0/3,000	150/350	600/1,800
0/40	0/4,000	100/400	800/1,800
0/45	0/5,000	150/400	1,200/1,800
0/50	0/10,000	50/500	700/2,000
0/55	0/15,000	100/500	1,000/2,500
0/60	0/20,000	200/500	1,500/2,500
0/65	0/30,000	300/500	800/3,000
0/70	0/50,000	200/700	1,500/3,000

Square Root Ranges

0/5	0/70	0/300	0/1,500
0/10	0/80	0/350	0/2,000
0/15	0/90	0/400	0/3,000
0/20	0/100	0/500	0/4,000
0/25	0/125	0/600	0/5,000
0/30	0/150	0/700	0/10,000
0/40	0/175	0/800	
0/50	0/200	0/900	
0/60	0/250	0/1,000	

Compound Ranges

30" Hg/0/15 psi	30" Hg/0/150 psi
30" Hg/0/50 psi	30" Hg/0/500 psi
30" Hg/0/60 psi	30" Hg/0/800 psi
30" Hg/0/100 psi	



Options

Ashcroft Duragauge® Pressure Gauge

纤维壳压力表

Case and ring options	Code	Comments
Normally Sealed Case	H	Available on types 4½, 1278 and 4½, 6" 1379 models only.
Gauge Heater	HU	Used for outdoor applications or other services where ambient temperatures are -50°F. Available on 4½, 6" 1377 and 1379 models only.
Flush Mounting Ring - Steel, Black Epoxy	56	Available on 4½, 1278 and 4½, 6" 1379 models only. (also called 1278 flush mounting ring)
Flush Mounting Ring - Stainless steel, Polished	57	Available on 4½, 1278 and 4½, 6" 1379 models only. (also called 1278 flush mounting ring)
Bourdon tube and system assembly options		
AND10Bd 1 (K) Tubing Conn.	AM	
1/2" High Pressure Tubing Conn.	09	Standard on ranges 30,000 psi and up.
Overload Stop	US	Used to protect the gauge against extreme pressures.
Underload Stop	VS	Used to protect low pressure gauges against vacuum.
Throttle Screws - Brass, stainless steel & Monel	TS	0.031" Standard. Other sizes: .006, .0135, .020, .040, .050 and .070. (Monel .040 only)
Capillary Bleeder	BC	Available in model 1378, 4½" Lower conn. only with stainless steel system. Max. pressure 1,000 psi.
Tip Bleeder	1B	Available in bronze, St. St. or Monel bourdon tube gauges only. Max. pressure 15,000 psi.
Cleaning for Gaseous Oxygen	6B	Not available with steel bourdon tube. If gauge is liquid filled specify Halocarbon as the fill.
Cleaning for Liquid Oxygen Service	6D	
Free from Mercury Contamination	MF	Provided with free from mercury contamination certification (CD-2)
Link options		
Slotted Link for Sudden Pressure Increase	RJ	Unless specified, slotted link set for pressure increase. Accuracy 1% F.S. with slotted link
Slotted Link for Sudden Pressure Decrease	S4	
Liquid filling options		
Silicone Fill	GV	
Halocarbon Fill	GX	For oxidizing media. Examples: chlorine, oxygen, nitric acid & sulfuric acid.
Pointer options		
Red Set Hand (Single)	SH	Single stationary set hand used to indicate a specific pressure.
Red Set Hand (Double)	SJ	Double stationary set hand used to indicate 2 specific pressures.
Red Set Hand (Adjustable)	EC	Internally adjustable.
Maximum Pointer	EP	Externally reset by a knob on outside of an acrylic window.
Minimum Pointer	EQ	Externally reset by a knob on outside of an acrylic window.
Window options		
Acrylic Window	PD	Ambient temperature limits -50/180 degrees F.
Laminated Safety Glass	SG	Ambient temperature limits -50/200 degrees F.
Non Glare Glass	NG	Ambient temperature limits -50/350 degrees F.
Marking and tagging options		
Dial Marking	DA	Service marking printed on dial.
Paper Tagging of Carton and Gauge	NN	Tag is bonded to gauge case and carton.
Stainless Steel Tagging of Gauge Case	NH	301 series stainless steel tag is wired to gauge case.
Calibration options		
Calibrate to Absolute Pressure	AG	
Test and certificate options		
Mass Spectrometer Leak Test	ML	
Special Certificate of Conformance	CD-1A	Non standard certificate of conformance.
Certificate of Conformance	CD-1	Conformance to specifications and/or drawings.
Free From Mercury Contamination	CD-2	Conformance to specifications and/or drawings and free from mercury contamination.
Individual Certified Calibration Chart	CD-4	

How to Order

Ashcroft Duragauge® Pressure Gauge

纤维壳压力表

Table A – Case selection & mounting

Dial Size (in)	Ordering Code	Case Type	Case: Material Finish	Ring: Style Material Finish	Mounting/Connection	
4"	(45)	1279 ⁽¹⁾	Phenolic (Black)	Threaded Reinforced Polypropylene (Black)	Stem—	Lower or back
					Surface—	Lower or back
					Flush—	Back: Specify X58
4½, 5, 5½	(45)(60)(85)	1377	Aluminum Black epoxy coating	Hinged Steel Black wrinkle enamel coat	Flush—	Back
					Stem—	Lower or back
4½, 5, 5½	(45)(60)(85)	1379 ⁽¹⁾	Aluminum Black epoxy coating	4½", 6" Threaded reinforced polypropylene 8½" Hinged steel, black wrinkle enamel coat	Stem—	Lower or back
					Surface—	Lower or back
					Flush—	Back: specify X56 8½ standard
6	(60)	2462	Polypropylene (fiberglass reinforced) (Black)	Bayonet lock Polypropylene (Black)	Stem—	Lower or back
					Surface—	Lower or back, specify XBP
					Flush—	Back, specify X80
6	(60)	1379 (high pressure)	Aluminum Black epoxy coating	6" Threaded reinforced polypropylene	Flush—	Lower or back
					Surface—	Lower or back

Table B – System, connection & location

Bourdon Tube & Tip Material ⁽¹⁾ (all joints TIG welded except code "A")	Socket Material ⁽²⁾	Tube & Socket Code	Case Style & Code	NPT Conn. & Code	Conn. Location & Code	Range Selection Limits (psi)
C510 Grade A Phosphor Bronze Tube Brass Tip, Silver Brazed	Brass	(A)	(S) Solid Front	(04) ¼	Lower (L) or Back (B)	Vac/1,000
4130 alloy steel	1018 steel	(B)	(S) Solid Front	(ST1)		Vac/5,000
316 stainless steel	1018 steel	(T)	(S) Solid Front	(02) ¼		Vac/20,000
316 stainless steel	316 stainless steel	(S)	(S) Solid Front	(OPT)		Vac/20,000
K 500 Monel ⁽³⁾	Monel 400	(P)	(S) Solid Front			Vac/30,000
Inconel 718 ³	316 stainless steel	(WW)	(St) Solid Front Herm. Sealed	(08) ¼ High Pres		50,000/80,000/100,000

NOTES:

- (1) Liquid fillable or hermetically sealed when 1280 kit is specified.
- (2) For selection of the correct bourdon system material, see the media application table on page 9.
- (3) Use on applications where NACE MR-01-75 is specified for selection of the correct bourdon system material. See the media selection table on page 9.

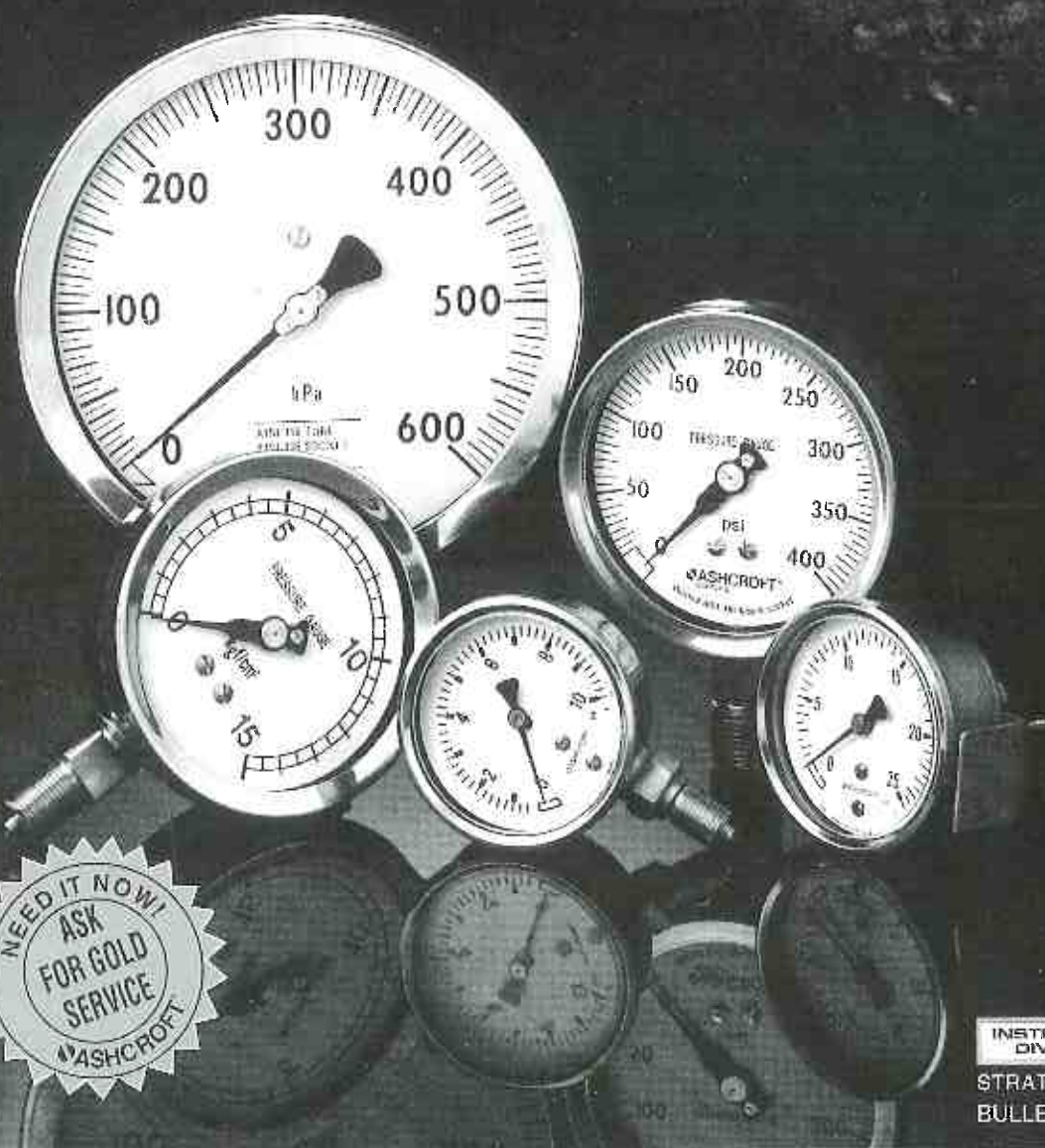
To order a Duragauge (sample coding shown)

Select:	45	1279	RS*	04L	XXX	0/2,000 psi
1. Dial size—4½"						
2. Case type—1279						
3. Bourdon tube and socket code						
4. Connection—¼ NPT (02), ½ NPT (04), Lower (L), Back(B)						
5. Optional features						
6. Pressure range (see range tables on pages 10 & 11)						




(*) "S" denotes solid front case design

Duralife® Metric Process Gauge

- Patented Duralife Movement Design
- Vibration Resistant
- All Welded Stainless Steel Construction
- Overload and Underload Stops
- Field Liquid Fillable



INSTRUMENT DIVISION 
STRATFORD OPERATIONS
BULLETIN GS-4

	63 1008S	100 1009SW	160 XMG ⁽¹⁾
			
Dial Size:	63mm ⁽²⁾	100mm ⁽³⁾	160mm ⁽⁴⁾
Case:	304 stainless steel	304 stainless steel	304 stainless steel
Ring:	304 stainless steel, crimped	304 stainless steel, removable	304 stainless steel, removable
Bourdon tube:	316 stainless steel	316 stainless steel	316 stainless steel
Socket:	316 stainless steel	316 stainless steel	316 stainless steel
Movement:	Suspended design all stainless steel	Suspended design all stainless steel	Rotary type all stainless steel
Accuracy:	1.5% full scale	1% full scale	1% full scale
Window:	Polycarbonate	Laminated safety glass standard, polycarbonate optional	Laminated safety glass
Pointer:	Non-Adjustable	Micrometer adjustable	Micrometer adjustable
Dial:	Flat white aluminum black markings	Flat white aluminum black markings	Flat white aluminum black markings
Relief plug:	Vented, top located. Sealed type for liquid filled.	Vented, rear located. Sealed type for liquid filled.	Vented, rear located. Sealed type for liquid filled.
Liquid filling:	Factory or field. Standard fill: glycerin	Factory or field. Standard fill: glycerin	Factory or field. ⁽⁶⁾ Standard fill: glycerin
Connections ⁽¹⁾ :	02: 1/4" NPT KJ: 1/4" straight JIS, BSP KA: 1/4" tapered JIS, BSP 13: G 1/4" DIN	04: 1/2" NPT 02: 1/4" NPT KP: 3/8" straight JIS, BSP KN: 1/2" straight JIS, BSP KR: 3/8" tapered JIS, BSP KQ: 1/2" tapered JIS, BSP	04: 1/2" NPT KN: 1/2" straight JIS, BSP KQ: 1/2" tapered JIS, BSP
Mounting:	XFF option for front flange panel mount. XUC option for U-clamp panel.	XFW option for wall mount. XUC option for U-clamp panel.	Optional U-clamp panel mounting available.
	<p>The Ashcroft® Duralife® movement gauge represents the finest in gauge technology, particularly for vibration and pulsation applications.</p> <p>The patented Duralife® movement is suspended between the Bourdon tube and the socket. This spring suspension significantly reduces the forces transmitted to the precision moving parts during vibration and pulsation. This Duralife movement feature extends gauge life in applications where vibration and pulsation may quickly destroy conventional gauges.</p> <p>This unique gauge offers all welded construction. The tip/tube and tube/socket joints are welded. The case/socket joint is also of welded construction and provides a permanent seal in the event that liquid filling is required. The stainless steel construction is ideal for applications where corrosion is a factor.</p> <p>The movement has both an overload and an underload stop to prevent disengagement of the gears in the event of over or under pressure.</p> <p>The gauges are offered in a dry version (which can be field filled), or a liquid filled version which is usually recommended for severe services.</p>		<p>The 160mm gauge utilizes a conventional bourdon tube, rotary movement and backplate. This makes the 160mm easy to recalibrate since full linearity and span adjustments can be made. This product can also be made hermetically sealed or liquid filled at the factory.</p>
(1) Connections shown available lower and back	<p>(2) All sockets have 7/16" (11mm) two flats</p> <p>(3) Metric sockets have 17mm square wrench flats, 1/2" NPT has two 5/8" wrench flats</p> <p>NOTE: Metric sockets comply with DIN threads also.</p>		<p>(4) The 160mm gauge is provided with a conventional movement rather than the suspended movement.</p> <p>(5) Supplied with two 5/8" wrench flats</p> <p>(6) 160mm must be ordered as field fillable if required</p>

Pressure Ranges Standard Metric Ranges

RANGE		DIAL GRADUATIONS		Outer scale psi when dual range specified
kg/cm ² (1) Pressure	bar Pressure	Figure Interval	Minor Graduation	
0/1	0/1	0.1	0.01	0/14
0/1.6	0/1.6	0.2	0.02	0/22
0/2.5	0/2.5	0.5	0.05	0/35
0/4	0/4	0.5	0.05	0/55
0/6	0/6	0.5	0.1	0/85
0/10	0/10	1	0.1	0/140
0/16	0/16	2	0.2	0/220
0/25	0/25	5	0.5	0/350
0/40	0/40	5	0.5	0/550
0/60	0/60	5	1	0/850
0/100	0/100	10	1	0/1,400
0/160	0/100	20	2	0/2,200
0/250	0/250	50	5	0/3,500
0/400	0/400	50	5	0/5,500
0/600	0/600	50	10	0/8,500
0/1,000	0/1,000	100	10	0/14,000
Vacuum				
-1/0	-1/0	0.1	0.01	30/0" Hg
Compound				
-1/1.5	-1/1.5	0.5	0.05	30" Hg/20 psi
-1/3	-1/3	0.5	0.05	30" Hg/40 psi
-1/5	-1/5	0.5	0.1	30" Hg/70 psi
-1/9	-1/9	1	0.1	30" Hg/125 psi
-1/15	-1/15	2	0.2	30" Hg/215 psi
-1/24	-1/24	5	0.5	30" Hg/340 psi
kPa Pressure		Figure Interval	Minor Graduation	Outer scale psi dual range
0/100		10	1	0/14
0/160		20	2	0/22
0/250		50	5	0/35
0/400		50	5	0/55
0/600		50	10	0/85
0/1,000		100	10	0/140
0/1,600		200	20	0/220
0/2,500		500	50	0/350
0/4,000		500	50	0/550
0/6,000		500	100	0/850
0/10,000		1,000	100	0/1,400
0/16,000		2,000	200	0/2,200
0/25,000		5,000	200	0/3,500
0/40,000		5,000	500	0/5,500
0/60,000		5,000	500	0/8,500
0/100,000		10,000	1,000	0/14,000
Vacuum				
-100/0		10	1	30/0"Hg
Compound				
-100/150		50	5	30"Hg/20 psi
-100/300		50	5	30"Hg/40 psi
-100/500		50	10	30"Hg/70 psi
-100/900		100	10	30"Hg/125 psi
-100/1,500		200	20	30"Hg/215 psi
-100/2,400		500	20	30"Hg/340 psi

(1) Standard single scale JIS dials can also be supplied.
These ranges are in kg/cm² as follows: 2, 3, 15, 20, 35, 50, 70, 150, 350 and 700

Product Specifications subject to change without notice

Standard PSI Ranges

RANGE		DIAL GRADUATIONS		
psi Pressure	Figure Interval	Minor Graduation		
0/15	1	0.2		
0/30	5	0.5		
0/60	5	1		
0/100	10	1		
0/160	20	2		
0/200	20	2		
0/300	30	5		
0/400	50	5		
0/600	50	10		
0/800	100	10		
0/1,000	100	10		
0/1,500	200	20		
0/2,000	200	20		
0/3,000	50	50		
0/4,000	100	50		
0/5,000	500	50		
0/6,000	1,000	100		
0/7,500	1,000	100		
0/10,000	1,000	100		
0/15,000	2,000	200		
Vacuum				
30/0 inches Mercury	5 inches Mercury	0.5 inches Mercury		
Compound	in Hg	psi	in Hg	psi
30" Hg Vac/ 15 psi	5	3	1	0.5
30" Hg Vac/ 30 psi	10	5	1	1
30" Hg Vac/ 60 psi	10	10	2	1
30" Hg Vac/ 100 psi	10	10	2	1
30" Hg Vac/ 150 psi	10	20	5	2
30" Hg Vac/ 300 psi	30	25	5	5

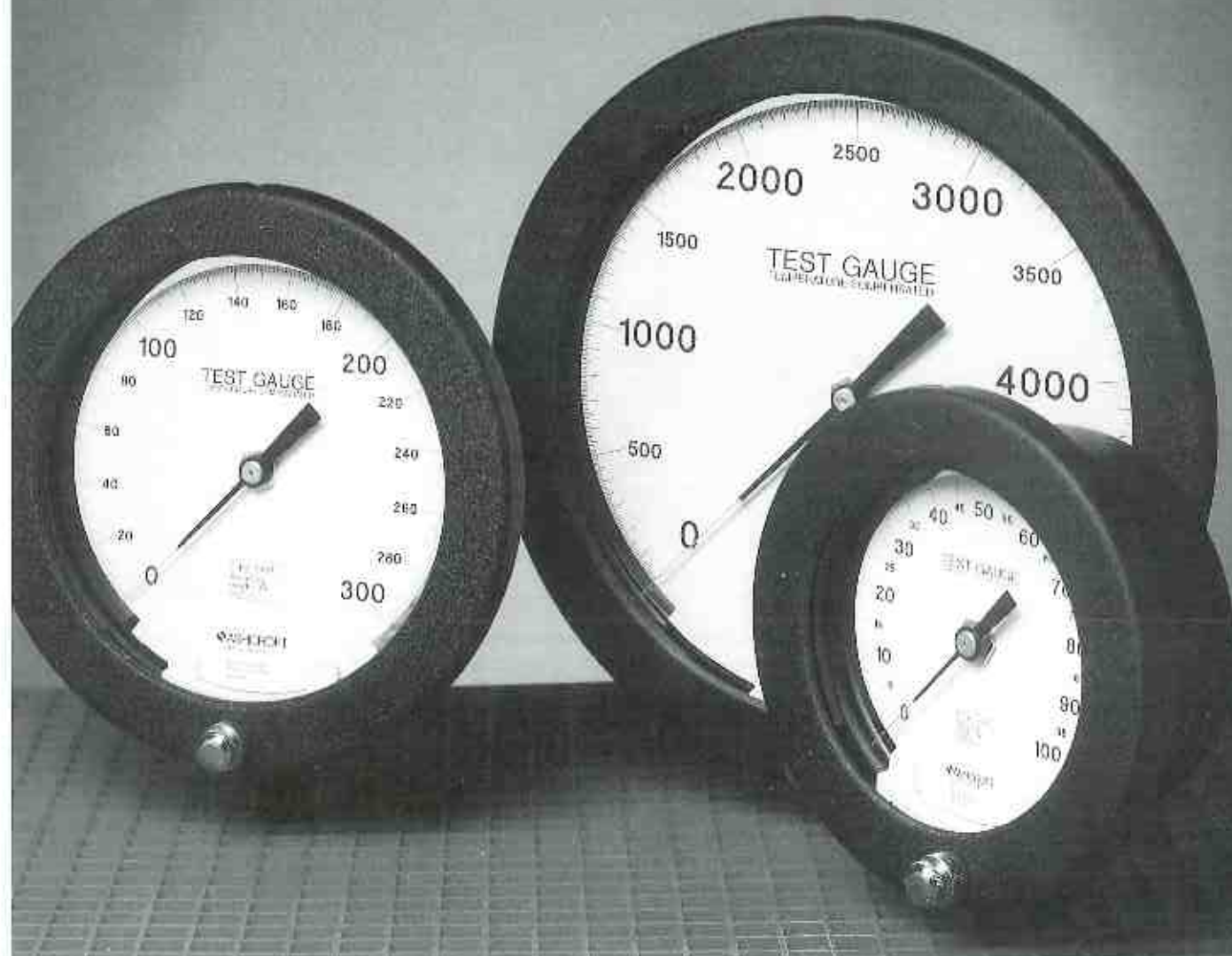
All gauges may be ordered with metric single scale dial: kPa, bar or kg/cm²

Dual scale dials will be supplied with a standard metric inner scale and equivalent psi outer scale – psi dominant dual scales are also available. Please be specific when ordering.

How To Order

63	-	100BS	-	KJB	-	XMG	-	6 BR
63mm Case	Model	1/4" Straight	Metric Gauge features	6 bar Range				
10	-	100SW	-	04L	-	XMG	-	10 KSC
100mm Case	Model	1/2" NPT Lower	Metric Gauge features	10 kg/cm ² Range				
160	-	---	-	KNL	-	XMG	-	0-100 KPA
160mm Case		1/2" Straight	Metric Gauge features	100 kPa Range				

TEST GAUGES



DRESSER INDUSTRIES 
INSTRUMENT DIVISION
BULLETINTG-2

Introduction

Dresser engineers have developed a new generation of test gauges to meet the exacting needs of instrument engineers and quality specialists. The new Ashcroft® test gauge can be used as a transfer standard for periodically checking the accuracy of pressure instruments or as a laboratory instrument for research and test labs. The wealth of new features make it an excellent test gauge for process applications where high accuracy in pressure measurement is essential.

External adjustable dial facilitates compensation for tare or zero adjustment on standard case style type 1082(*)S only.

- Temperature compensated movement that significantly reduces temperature error.

Conventional test gauge accuracy is adversely affected as the ambient temperature varies from that at which the gauge was calibrated. This inaccuracy can be as much as 0.02%/°F or ½% for a 25°F temperature change. The 4½" and larger Ashcroft test gauges include a special bimetallic element which automatically reduces ambient temperature errors to less than 0.005% per degree F.

Some manufacturers reduce temperature error by using NiSpan C® for Bourdon tubes. This material is subject to serious corrosion problems in some applications. The Ashcroft temperature compensated movement allows use of AISI 316 stainless steel, monel or bronze Bourdon tubes for corrosion resistance superior to NiSpan C while still providing excellent temperature stability.

- Micro-Span adjustment for ease in span calibration. This device permits precise adjustments to achieve exact span calibration from 0 to 100% of scale. The micrometer screw attached to the slide will vary the span by approximately ½% per 360° rotation.
- The long life Bourdon tube is capable of sustained accuracy, yet is suitable for process applications. The Ashcroft test gauge uses the Ashcroft Duragauge pressure gauge Bourdon tube — perhaps the most highly developed Bourdon tube in the world. Proven and refined by years of rugged service in demanding process applications around the world, this outstanding pressure element is standard in all 4½", 6" and 8½" size Ashcroft test gauges.

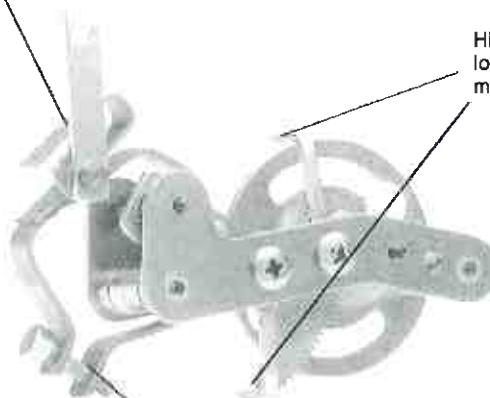
- Hydraulically staked movement provides improved stability. The movement, with Teflon® coated gears and bearings, uses a unique hydraulic staking operation to ensure a rigid movement frame that resists shift due to shock and vibration.

High and low pressure movement stops are standard to protect the gauge against calibration shifts caused by accidental overpressure, and to limit pointer rotation.

- Improved dial and pointer results in excellent readability. Larger numerals, additional graduations and a highly polished mirror band combined with a knife edge pointer with red painted tip to allow precision readability that eliminates parallax error.
- Test gauges are built in a modern manufacturing environment. Assembly, calibration and inspection are performed in a climate controlled manufacturing cell to ensure consistent product quality. Computer set pressure standards give accurate calibration that is traceable to NIST (National Institute of Standard & Technology — formerly NBS). A skilled technician is responsible for building, calibrating and final inspection of each test gauge. The technician's signature attached to the gauge guarantees ASME B 40.1, Grade 3A (0.25%) full scale accuracy.
- The standard test gauges are now available from stock. The new standard 4½", 6" and 8½" 1082 gauge line is supplied with solid front case for safety. Corrosion resistant black epoxy finish is standard.

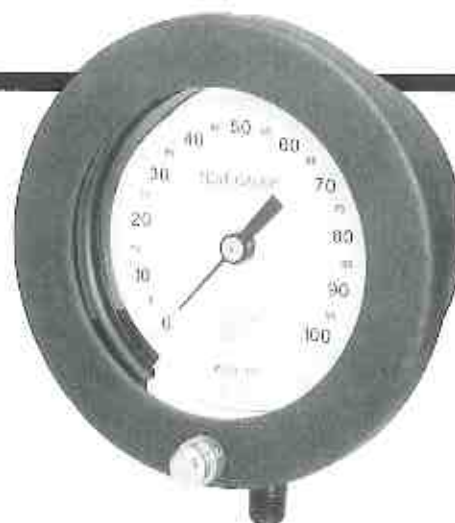
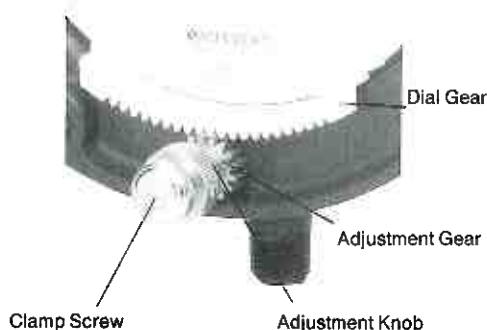
Temperature compensator reduces temperature-caused errors to less than 0.005% per °F temperature change.

High and low pressure movement stops.



The Micro-Span adjustment permits precise adjustments to achieve zero error in calibration at zero and 100% of scale.

Standard Case Style Type 1082(*)S



FRONT VIEW

SPECIFICATIONS	TYPE 1082(*)S
Accuracy %/Grade	±0.25/ASME B 40.1, Grade 3A
Dial Size	4½", 6" 8½"
Tube and Socket Material	(A) Phosphor Bronze Tube, Brass Socket (S) AISI 316 St. St. Tube and Socket (P) Monel Tube and Socket
Case Material	Aluminum, Solid Front, Black Epoxy Coated
Movement	400 Series Stainless Steel Rotary Design Teflon TM S Coated Bearings - Micro-Span Adjustment Bi-Metallic Temp. Compensator (.005%/° per degree F Max. Temp. Error)
Mounting and NPT Connection Location	Stem or Flush Mounting ⁽²⁾ ¼" NPT Lower or Back ⁽³⁾
Ranges and Bourdon Tube Selection	Vac/600 psi - (A) Phosphor Bronze Vac/3000 psi - (S) AISI 316 St. St. Vac/10000 psi - (P) K Monel
Ring	Hinged Steel - Black Wrinkle Finish
Window	Glass
Pointer	Aluminum - Black Red Painted Knife Edge Tip
Dial	Externally Adjustable, Mylar [®] / Aluminum Composite, Black Numerals With Polished Mirror Band
Weatherproof	Yes
Options	See Page 7

* Bourdon Tube Designation

(1) (4) Registered TM of DuPont Co.

(2) Cases Supplied with Studs for Flush Mounting

(3) Optional Connection ½" NPT

- Consistent case style in 4½", 6" and 8½" sizes
- Includes all Ashcroft test gauge features
- Competitive pricing
- Available from stock

The standard Ashcroft® test gauge case style features a solid front aluminum case that is black epoxy coated. The ring is hinged steel with black wrinkle enamel finish and is retained by a combination clamp screw and geared dial adjustment knob at the bottom. Externally adjustable dial facilitates compensation for tare or zero adjustment.

The same standard case design is now offered in 4½", 6" and 8½" dial sizes in both lower and back connection. All are equipped with temperature compensation and micro-span adjustment and all other Ashcroft® product enhancements that ensure superior product quality and performance. The standard test gauge is competitively priced and available from stock for most ranges, tube materials and case sizes.

This standard case style is ideal for stem mounting or for panel board applications. Its stability, accuracy and durability make it ideal for process applications where high accuracy and dependability are required.

BACK VIEW

(pressure relief back — removed)



Optional Case Styles Type 1082

These special case types include all the features of the standard test gauge with the exception of the external adjustable dial.



CASE TYPE XAZ

This rugged, solid front aluminum case has a threaded aluminum front ring. Both case and ring have a black epoxy finish. This case style has no back flange. It is a durable case with an epoxy finish that stands up well to most environmental conditions. It is available with lower or back connection, in 4½" dial size only.



CASE TYPE XAY

This is a solid front aluminum case with a back flange. It has a threaded black polypropylene ring. This case is black epoxy finished to stand up well under most environmental conditions. It can be stem, surface or flush mounted and is available in 4½" and 6" dial sizes with lower or back connection.



CASE TYPE XTY

This is a solid front black phenolic turret case with a threaded black polypropylene ring. It is lightweight and it offers a high resistance to corrosion. It can be stem, surface or flush mounted and is available with lower or back connection, in 4½" dial size only.



CASE TYPE XQY

This unique design is a solid front black polypropylene, fiberglass reinforced impact resistant case with bayonet ring. It can be stem, surface or flush mounted with lower or back connection, in 6" dial size only.



Adjustable tabs can be set to each cardinal point providing a higher degree of accuracy.



SPECIFICATIONS	TYPE 1080(*)S	TYPE 1084
Accuracy %/Grade	±0.25/ASME B 40.1, Grade 3A	±0.5/ASME B 40.1, Grade 2A
Dial Size	8½"	3"
Tube and Socket Material	(P) Monel Tube and Socket	AISI 316 St. St. Welded
Case Material	Aluminum, Solid Front, with Handle Black Epoxy Coated	Polished St. St. – Open Front ⁽¹⁾
Movement	400 Series Stainless Steel Rotary Design. Teflon S Coated Bearings – Micrometer Span Adjustment – Bi-Metallic Temp. Compensator (.005%/per °F Max. Temp. Error)	Precision, Stainless Steel with Teflon "S" Coated Bearings and Pinion
Mounting and NPT Connection Location	Stem Mounting ¼" NPT Lower or Back Optional Connection ½" NPT	¼" NPT Lower Only
Ranges and Bourdon Tube Selection	Vac/10000 psi – (P) K Monel	Vac/1000 psi
Ring	Hinged Steel – Black Wrinkle Finish	Bayonet Cam – Lock Polished Stainless Steel
Window	Glass	Polycarbonate
Pointer	Balanced Friction Adjustable with Red Knife Edge Tip	Black Aluminum with Red-Painted Knife-Edge Tip
Dial	White Background, Black Graduations with Polished Mirror Band	Zero Adjustable Mylar®/Aluminum Composite, White Background, Black Numerals with Polished Mirror Band
Weatherproof	Yes	Yes
Options	See Page 6	See Page 6

* Bourdon Tube Designation

(1) Optional Cover — Specify 302B198-01.

Digital Test Gauge*

Accessories and Optional Features

The Ashcroft 0.25% Digitest Pressure Indicator is an accurate, reliable, low cost instrument with state-of-the-art technology and advanced transducer design.

**Accuracy**

±0.25% of Full Scale, Including Linearity, Hysteresis, and Repeatability

Case

Aluminum, Flanged Front Bezel to DIN 43700 Suitable for Portable, Bench or Panel Mounting

Display

2530C - 3½ Digit .5" LCD
2530E - 3½ Digit .5" LED
2545C - 4½ Digit .4" LCD
2545E & F - 4½ Digit .5" LED

Sensing Element

Inconel 718 Non-contacting Photo Optic with Diaphragm (up to 200 psi)
Helical Bourdon Tube (over 200 psi to 10,000 psi)

Ranges

Vacuum and Compound,
50 inches H₂O to 10,000 psi

Process Connection

½" NPT Female or
¼" High Pressure Tubing Connection

Electrical Connection

2545E - AC Receptacle
2545F - Terminal Connection

Power Supply

2530C & 2545C -
Replaceable 9V Alkaline Battery
2530E, 2545E & 2545F -
115 or 220 VAC 50/60 Hz

Environmental Specification

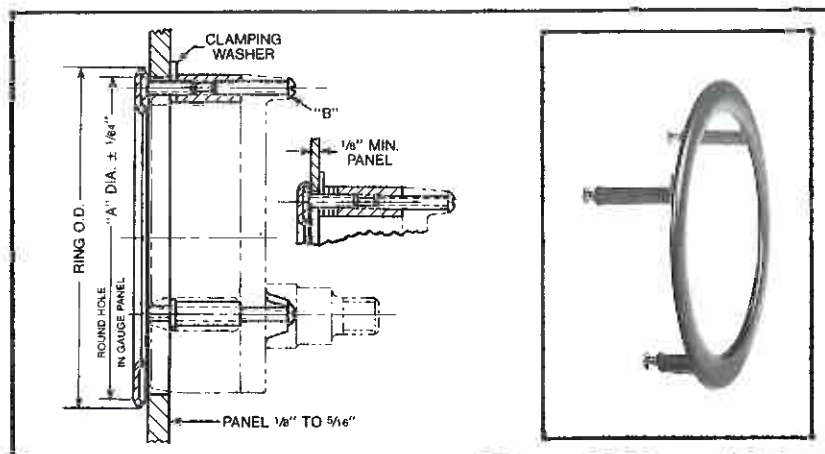
Operating Temperature Range: 32°F to 110°F
Humidity Limits:
Up to 100% RH - Non-Condensing

Options and Accessories

Peak Hold, High-Low Alarms, Unit Select, Analog Output, FM Intrinsically Safe, Cleaned for Oxygen Service, Carrying Case, Etc. are Available

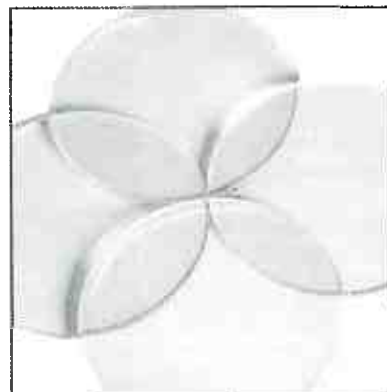
Applications

For Precision Measurement in Instrument Shops, Production Lines, or in the Field Applications Including Process, Power, Marine, Petroleum and Chemical as well as Laboratory Test

**TYPE 1278M
FLUSH MOUNTING RING**

The flush mounting ring is used to flush mount gauge case type XTY and XAY. Standard finish is black. Polished stainless steel finish is available for an extra charge.

Gauge Size (Inches)	Ring O.D. (Inches)	A Dia. (Inches)	"B" — Three Screws Size
4½	6.000	5¾/64	#10-24 x ¾"
6	7.765	7¼	¼-20 x 1½"

**OPTIONAL WINDOWS****Acrylic —**

Optional for glass window.

Laminated Safety Glass —

Optional for glass window.

Non-Glare Glass —

Optional for glass window.

THROTTLING DEVICES

The throttling devices should be used when a pressure gauge is subjected to rapid pressure fluctuations, which make the gauge difficult to read because of rapid pointer movement. Such a device produces pressure impact, slows the speed and range of pointer movement, and prolongs gauge life. Refer to Ashcroft Duragauge bulletin DU-1 for further details.

**TIP BLEED**

The tip bleed allows trapped air to be removed from the Bourdon tube. It's also used for back flushing or cleaning the system. The tip bleed is limited to 4½", 6" and 8½" solid front cases, bronze, Monel or AISI 316 stainless steel tube systems.

HAND JACK SET

Gauge pointer remover and a pointer set, to secure pointer to the shaft.

**GAUGE TOOL KIT**

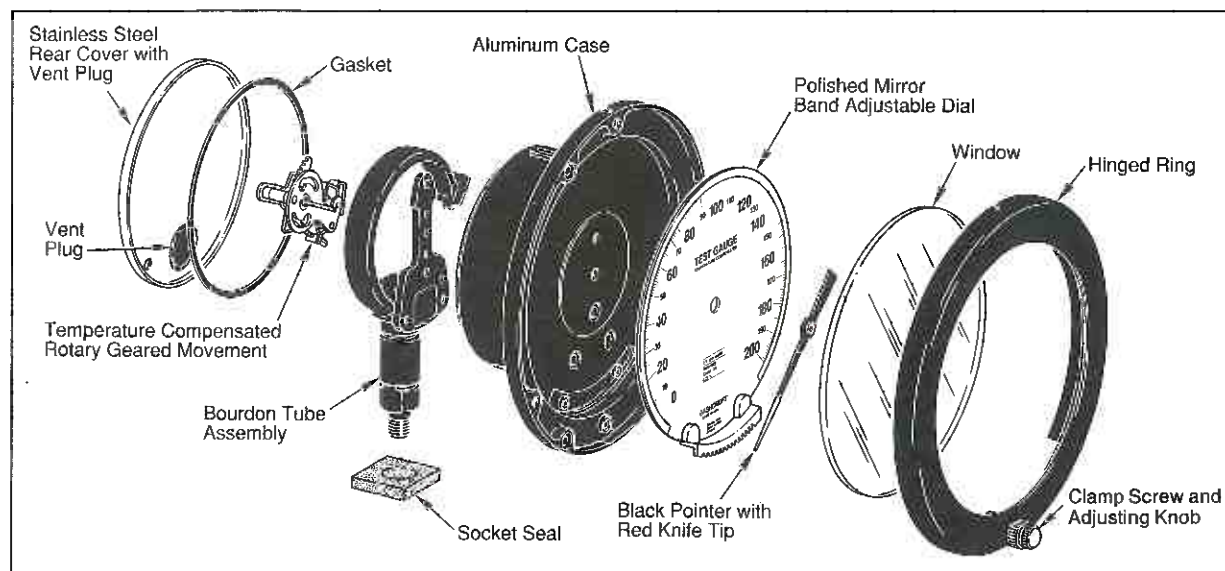
A complete kit for gauge maintenance. Includes hand jack set, screw driver, five reamers, two pin vise holders, wiggler and tweezer all packed in a neat carrying case. Ideal for a gauge maintenance shop.



*For complete product specifications, ask for Bulletin DTG-2

Product Selection Information

Consult ASME B40.1 — for guidance in gauge selection



WARNING: Pressure gauges should be selected considering media and ambient operating conditions, to prevent mis-application. Improper application can be detrimental to the gauge, causing failure and possibly personal injury or property damage.

The information contained in this catalog is offered as a guide to assist in making the proper selection of a test gauge.

Pressure Ranges — For process applications, select a gauge with a full scale pressure range of approximately twice the normal operating pressure. The maximum operating pressure should not normally exceed 75% of the full range. For laboratory applications, where cycling is less frequent, the range of the test gauge may be the same as that of the instrument under test.

Operating Conditions — The operating conditions to which a gauge will be subjected must be considered. Metal case gauges can withstand continuous ambient temperatures as high as 350°F. Phenolic and polypropylene case gauges can withstand ambient temperatures up to 250°F. Accuracy of temperature compensated Type 1082 gauges will be affected by approximately 0.005% per degree F and accuracy of all other test gauges will be affected by approximately 0.015% per degree F. All pressure system gauges except bronze have welded joints and will withstand media temperatures up to 750°F. Bronze pressure system gauges are silver brazed and should be limited to 450°F. These extreme temperatures adversely affect calibration.

Cases — Six different case styles and four different materials are offered — aluminum alloy, stainless steel, fiberglass reinforced polypropylene, and phenolic. Two types are offered, open and solid front. The open front Type 1084 case is constructed with the dial between the Bourdon tube and the window, with a pressure relief opening between the socket and the case. The solid front cases supplied on all other test gauges provide increased safety with a solid wall between the Bourdon tube and the window. The entire rear of the gauge is covered with

a pressure relief back. Should the Bourdon tube fail due to overpressure, corrosion or fatigue, the wall directs pressure buildup through the rear, away from the dial and the window.

Bourdon Tube Pressure Elements — Available for a wide variety of media applications; materials include phosphor bronze, AISI 316 stainless steel and K-monel.

Movement — All gauges 4½" size and larger feature a rotary geared movement, the most efficient and positive method of transmitting mechanical motion. Moving parts are designed and protected to reduce friction and wear. All movements are ultrasonically cleaned and lubricated to guarantee smooth operation and to resist wear associated with high vibration and/or pulsation. Span, linearity, and zero adjustments are easily made to assure continued accuracy of all Ashcroft test gauges.

Dials — Mylar®/aluminum composite dials have highly legible black markings on a white background. Each test gauge dial has a mirror band which eliminates parallax errors when the pointer and its reflection are aligned. External adjustable dial available in standard case style 1082(*)S.

Pointers — Balanced knife edge tip pointers, supplied with all test gauges, allow precise and easy readings. All are lightweight to maintain a high standard of accuracy. Type 1082 and 1084 pointers include a red tip for enhanced readability.

Windows — The standard window for Type 1080 and 1082 test gauges is glass. Non-glare glass is optional. Acrylic windows, also optional, are more resistant to impact breakage than glass windows. Safety glass, also optional, will not fracture into many pieces as will ordinary glass. Window for Type 1084 is polycarbonate.

Rings — The ring, which retains the window, is threaded, bayonet (cam) or hinged, depending upon case type. All Type 1082 windows have a gasket to protect the internal mechanism from outside environments.

To Order a Gauge

Select:

1. Case Type — Table A
2. Dial Size — Table A
3. Bourdon System (*) Ordering Code — Table B
4. Connection: Location — Table A; Size — Table B
5. Optional Case Selection — Table A
6. Pressure Range: — From page 9

Example:	1	2	3	4	5	6
	1082(*)S	6"	K Monel P	Back ¼ NPT	XAY	0/600 psi

Table A — Case Selections

Case Type	Dial Size	Case Style	Case Material and Finish	Ring Material Style and Finish	Mounting and Connection Location
1082(*)S (standard)	4½" 8" 8½"	Solid Front	Aluminum Black epoxy	Hinged steel – Black wrinkle finish	Stem — Lower or back Flush — Back ⁽¹⁾
1082(*)S XAZ (option)	4½"	Solid Front	Aluminum Black epoxy	Threaded aluminum Black epoxy	Stem — Lower or back
1082(*)S XAY (option)	4½" 8"	Solid Front	Aluminum — Black epoxy	Threaded reinforced polypropylene Black	Stem — Lower or back Surface — Lower or back 4½" 6" (order 1278M Ring)
1082(*)S XTY (option)	4½"	Solid Front	Phenolic Turret – Black	Threaded reinforced polypropylene Black	Stem — Lower or back Surface — Lower or back Flush — Back (order 1278M Ring)
1082(*)S XQY (option)	6"	Solid Front	Polypropylene (fiberglass reinforced) Black	Bayonet lock type polypropylene Black	Stem — Lower or back Surface — Lower or back (specify XBF) Flush — Back (specify XBQ)
1084(*)	3"	Open Front ⁽²⁾	Polished stainless steel	Bayonet cam lock polished stainless steel	Stem — Lower
1080(*)S	8½"	Solid Front	Aluminum – Black epoxy with handle	Hinged steel – Black wrinkle finish	Stem — Lower or back

(*) Bourdon Tube designation

(1) Case supplied with studs for flush mounting

(2) 1084 optional cover — specify 302B198-01

Table B — Bourdon Tube Selection

Ordering Code	Bourdon Tube Tip Material (all joints TIG welded except "A")	Socket Material	Tube Type	Range Selection	Available with Case		NPT Connection*
					Size	Type	
A	Grade A Phosphor Bronze Tube – Brass Tip, Silver Brazed	Brass	C-Tube	Vac/600 psi	4½, 6, 8½	1082	¼
S	AISI 316 Stainless Steel	AISI 316 Stainless Steel	C-Tube	Vac/1000 psi	3	1084	¼
				Vac/1500 psi	4½, 6, 8½	1082	¼
P	K Monel	Monel 400	Helical	2000 & 3000 psi	4½, 6, 8½	1082	¼
				Vac/10,000 psi	8½ 4½, 6, 8½	1080 1082	¼

* Optional connection ½ NPT. Type 1084 is only available with ¼ NPT.

Standard Ranges

Standard PSI Ranges

Type 1082

Range	Minor Graduations		
	4½	6	8½
0/15	0.05	0.05	0.02
0/30	0.1	0.1	0.05
0/60	0.2	0.2	0.1
0/100	0.5	0.2	0.2
0/150	0.5	0.5	0.2
0/200	0.5	0.5	0.5
0/300	1	1	0.5
0/400	1	1	1
0/600	2	2	1
0/800	2	2	2
0/1000	5	2	2
0/1500	5	5	2
0/2000	10	5	5
0/3000	10	10	5
0/5000	20	10	10
0/10000	50	20	20

Vacuum

30"Hg/0	0.1	0.1	0.05
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Compound

"Hg/psi	Vac.	Press.	Vac.	Press.	Vac.	Press.
30/0/15	0.2	0.1	0.2	0.1	0.1	0.05
30/0/30	0.5	0.2	0.2	0.1	0.2	0.1
30/0/60	0.5	0.2	0.5	0.2	0.5	0.2
30/0/100	1	0.5	0.5	0.5	0.5	0.2
30/0/150	1	0.5	1	0.5	0.5	0.5
30/0/200	2	1	1	0.5	1	0.5
30/0/300	2	1	2	1	1	0.5
30/0/400	5	2	2	1	2	1

Type 1080

Range	Figure And Tab Intervals
0/15	1
0/30	2.5
0/60	5
0/100	5
0/160	10
0/200	10
0/300	25
0/400	25
0/600	50
0/800	50
0/1000	50
0/1500	100
0/2000	100
0/3000	250
0/5000	500
0/10000	500

Vacuum

30"Hg/0	2.5"Hg
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Compound

inches mercury	psi	inches mercury	psi
30	15	5	3
30	30	5	5

Type 1084

Type 1004

Range	Graduations				
	Figure Interval	Minor Graduation			
Pressure (psi)					
0/15	1	0.1			
0/30	2	0.2			
0/60	5	0.2			
0/100	10	1			
0/150	10	1			
0/200	20	2			
0/300	20	2			
0/400	50	2			
0/600	50	5			
0/1000	100	10			
Vacuum					
30"Hg/0	2	2			
Compound					
inches mercury	psi	in	psi	in	psi
30	15	5	2	0.5	0.2
30	30	10	5	1	.5
30	60	10	10	1	1
30	100	10	10	2	1
30	150	30	20	5	2
30	300	30	20	5	2

Standard Metric Ranges

Types 1080 and 1082

Range		
kg/cm²	bar	kPa
Pressure		
0/1	0/1	0/100
0/1.6	0/1.6	0/160
0/2.5	0/2.5	0/250
0/4	0/4	0/400
0/6	0/6	0/600
0/10	0/10	0/1000
0/16	0/16	0/1600
0/25	0/25	0/2500
0/40	0/40	0/4000
0/60	0/60	0/6000
0/100	0/100	0/10000
0/160	0/160	0/16000
0/250	0/250	0/25000
0/400	0/400	0/40000
0/600	0/600	0/60000

Vacuum

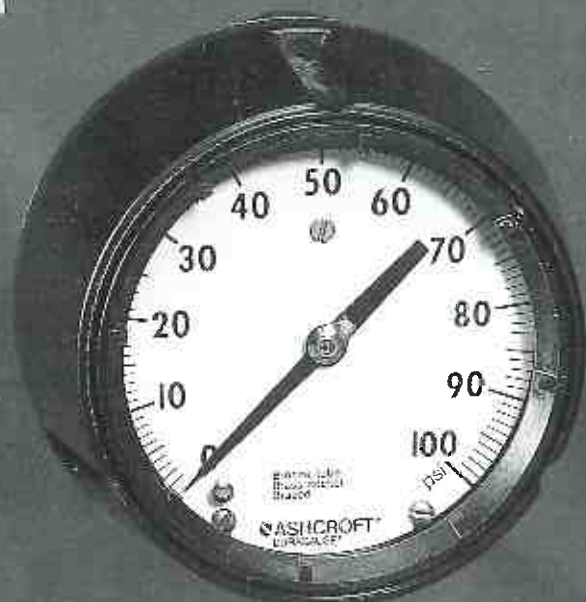
-1/0	-1/0	-100/0
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Compound

-1/0/1.5	-1/0/1.5	-100/0/150
-1/0/3	-1/0/3	-100/0/300
-1/0/5	-1/0/5	-100/0/500
-1/0/9	-1/0/9	-100/0/900

Type 1084

kg/cm²	bar	kPa
Pressure		
0/1	0/1	0/100
0/2	0/2	0/200
0/3	0/3	0/300
0/4	0/4	0/400
0/7	0/7	0/700
0/11	0/11	0/1100
0/14	0/14	0/1400
0/20	0/20	0/2000
0/28	0/28	0/2800
0/40	0/40	0/4000
0/70	0/70	0/7000
Vacuum		
-1/0	-1/0	-100/0
Compound		
-1/0/1	-1/0/1	-100/0/100
-1/0/3	-1/0/3	-100/0/300
-1/0/6	-1/0/6	-100/0/600
-1/0/10	-1/0/10	-100/0/1000



All-Welded Diaphragm Seal

- Recommended for use where clamped joints are not acceptable.
- Assists in controlling plant emissions by preventing possible leakage of hazardous chemicals.
- Prevents inadvertent disassembly of diaphragm seal.
- All stainless steel construction is standard. Other materials available (see reverse side).



SPECIFICATIONS

TYPE NUMBER / PROCESS CONNECTION

Type	Process Connection	Type Process Connection	Pressure Rating
400	1/4", 1/2", 3/4", 1" NPT	Threaded	7500 psi ⁽¹⁾
401	1/4", 1/2", 3/4", 1" NPT	Threaded with Flushing Connection	7500 psi
402	1/2", 3/4", 1", 1 1/2", 2", 3"	Raised Face Flange	per ASME B16.5 ⁽²⁾
500 ⁽³⁾	1/4", 1/2", 3/4", 1" NPT	Threaded	500 psi
501 ⁽³⁾	1/4", 1/2", 3/4", 1" NPT	Threaded with Flushing Connection	500 psi

- (1) XHP (High Pressure Rings) rating 15,000 psi (available on Type 400 only).
 (2) Flange ratings 150# through 1500#.

MATERIALS OF CONSTRUCTION (OTHER MATERIALS ON APPLICATION)

Diaphragm	Code	Bottom Housing	Code	Top Housing ⁽³⁾
316 Stainless Steel	S	316 Stainless Steel	S	316 Stainless Steel
Hastelloy C	H	Hastelloy C	H	
Tantalum	U			

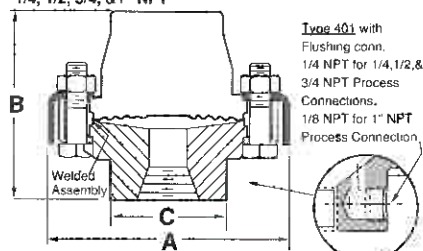
- (3) 316 St. St. Top Housing Standard.

FILLING FLUID

Filling	Service	Connection to Instrument	Temp. Range °F	Code
Glycerin	Pressure	Direct	0/400	CG
Silicone	Press./Vacuum	Direct or Flexible Line	-40/600	CK Direct to 10' EJ over 10'
Halocarbon	Pressure/Vacuum in presence of strong oxidizing agents	Direct or Flexible Line	-70/300	CH

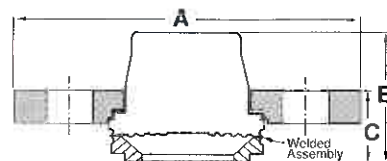
DIMENSIONS

Type 400 - All Welded, Threaded
1/4, 1/2, 3/4, & 1" NPT



A		B		C (Wrench flats)	
in	mm	in	mm	in	mm
3-3/4	95	2-7/8	73	1-13/16	46

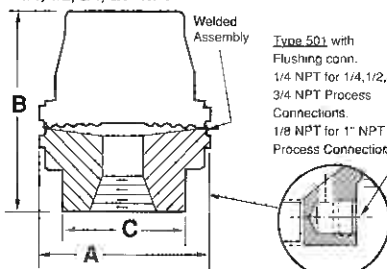
Type 402 - Flanged, 1" (Typical) (Raised Face Only)⁽⁴⁾



FLANGE	A		B		C	
RATING #	in	mm	in	mm	in	mm
150	4-1/4	108	2-3/16	56	1-5/16	33
300 or 600	5	127	2-3/16	56	1-1/4	32
900 or 1500	6	152	2-3/16	56	1-1/2	38

- (4) Contact factory for dimensions of other sizes.

Type 500 - All Welded, Threaded
1/4, 1/2, 3/4, & 1" NPT



A		B		C (Wrench flats)	
in	mm	in	mm	in	mm
2-1/2	63	2-7/8	73	1-13/16	46

TYPICAL ORDERING INFORMATION

Process Connection: 1" _____ 10 _____ 400 _____ S _____ S _____ 04T _____ CK _____
 Type Number: 400 _____
 Diaphragm Material: 316 St. St. _____
 Bottom Housing Material: 316 St. St. _____
 Instrument Connection (1/4" NPT (02T), or 1/2" NPT (04T)): _____
 Filling Fluid: Silicone (CK) _____

Note: When ordering a diaphragm seal with a flanged process connection, also include required flange rating & facing: e.g., 10-402SS-04T-XCK-150#RF

The New All-Welded Type 310 "Mini" Diaphragm Seal

- Compact size to fit space restricted areas.
- Designed to protect transducers, mini-switches and 3 1/2" or smaller pressure gauges from corrosion, plugging or freeze up.
- All-welded metal construction prevents leakage of process media.
- Rated for 2500 psi at 100° F.
- Fill/bleed connection is standard.



SPECIFICATIONS

TYPE NUMBER / PROCESS CONNECTION

Type	Instrument Connection	Code	Type Process Connection	Code	Maximum Pressure Rating ⁽¹⁾
310	1/4" NPT	02T	1/4" NPT 1/2" NPT	25 50	2500 psi @ 100°F

(1) For use with most 3 1/2" and smaller size gauges, 100 psi minimum range.
If ranges below 100 psi are required, consult factory.

MATERIALS OF CONSTRUCTION (OTHER MATERIALS AND MATERIAL COMBINATIONS ON APPLICATION)

Diaphragm	Code	Bottom Housing	Code	Top Housing ⁽²⁾
316L Stainless Steel	S	316L Stainless Steel	SL	316L Stainless Steel
Hastelloy C	H	316L Stainless Steel	SL	
	H	Hastelloy C	H	
Tantalum	U	Hastelloy C	H	

(2) 316 St. St. Top Housing Standard

FILLING FLUID ⁽³⁾

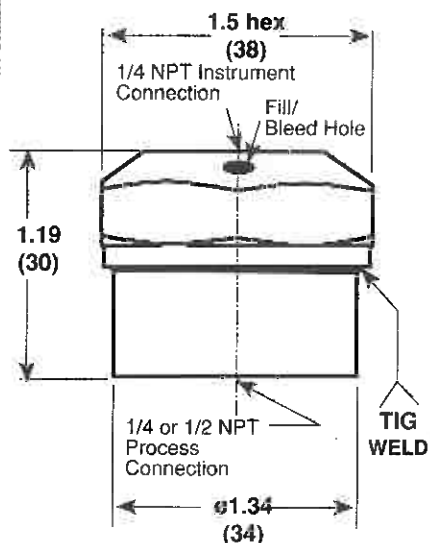
Filling	Service ⁽⁴⁾	Connection to Instrument	Temp. Range °F	Code
Glycerin	Pressure	Direct	0/400	CG
Silicone	Pressure	Direct or Flexible Line ⁽⁵⁾	-40/600	CK
Halocarbon	Pressure in presence of strong oxidizing agents	Direct or Flexible Line ⁽⁵⁾	-70/300	CF

(3) Filling fluid is applicable only when "mini" seal is attached to a pressure gauge or other instrument.

(4) For ranges below 100 psi, including vacuum, consult factory.

(5) Flexible line length limited to maximum of 10 feet.

DIMENSIONS



Dimensions in ()
are millimeters

TYPICAL ORDERING INFORMATION

Process Connection: 1/4" _____ 25 _____ 310 _____ S _____ SL _____ 02T _____ CG _____
 Type Number: 310 _____
 Diaphragm Material: 316L St. St. _____
 Bottom Housing Material: 316L St. St. _____
 Instrument Connection 1/4" NPT (02T): _____
 Filling Fluid: Glycerin (CG) (NOTE 3) _____
 Coded Order: 25-310SSL-02T-CG