

**PDC Excel Series 40
Butterfly Valve
2" thru 60" for High
Temperature & Dirty Service
125/150 lb. Flanging***



*Also Available in RPM Drilling in Most Sizes: Consult Factory

General Description:

The PDC "Excel" series butterfly valve is available in sizes from 2" thru 60" in a combination of materials and optional features suitable for most mid-range differential pressures and a wide range of temperature conditions.

Features:

- Inboard bushings of graphited bronze for long life, non-freezing, low torque characteristics on both shaft ends.
- Close tolerance machining for minimal leakage and dependable flow characteristics.
- Adjustable packing-Graphited TEFLON[®] Braid. Valves can be repacked without removal from line on both shaft ends.
- Rugged mounting pads drilled and tapped for ease of installing actuating equipment and accessories.
- Flatted, keywayed or hexed ends on shafts are available to facilitate factory or field mounting of all types of actuating equipment. (Flatted shaft shown).
- Lightweight, solid ring, wafer design for ease of installation. Four holes to insure proper alignment without transfer of pipe stresses to the valve body.

Standard Materials and Seat Construction:

	Valve Size		
	2"-14"	16"-24"	26"-60"
Body:	Cast Iron	Cast Iron	Cast Iron
Disc:	Cast Iron	Ductile Iron	Cast Iron
Shaft:	416 Stainless Steel	416 Stainless Steel	416 Stainless Steel
Seat:	Swing-thru	Swing-thru	Swing-thru
Bushing:	Graphited Bronze	Bronze	Bronze
Packing:	Graphited Teflon Braid	Graphited Teflon Braid	Graphited Teflon Braid
Packing Nut:	Brass	Brass	Ductile Iron

Optional Materials and Seat Construction:

Body:	Hi-Temp Iron, Carbon Steel, 316 Stainless Steel, 304 Stainless Steel
Disc:	Hi-Temp Iron, Carbon Steel, 316 Stainless Steel, 304 Stainless Steel
Shaft:	316 Stainless Steel, 304 Stainless Steel, Incoloy, Monel
Seat:	Angle (2"-30"), Metal Step (2"-60"), Tadpole Step (8"-60")
Bushing:	316 Stainless Steel, 304 Stainless Steel, Glass Filled Teflon, Metcar
Packing:	Hi-Temp Braid, Pure Teflon Braid, Teflon V-Ring
Packing Nut:	316 Stainless Steel

Temperature:

To 450°F with standard materials. To 1500°F with optional materials. (Consult Factory)

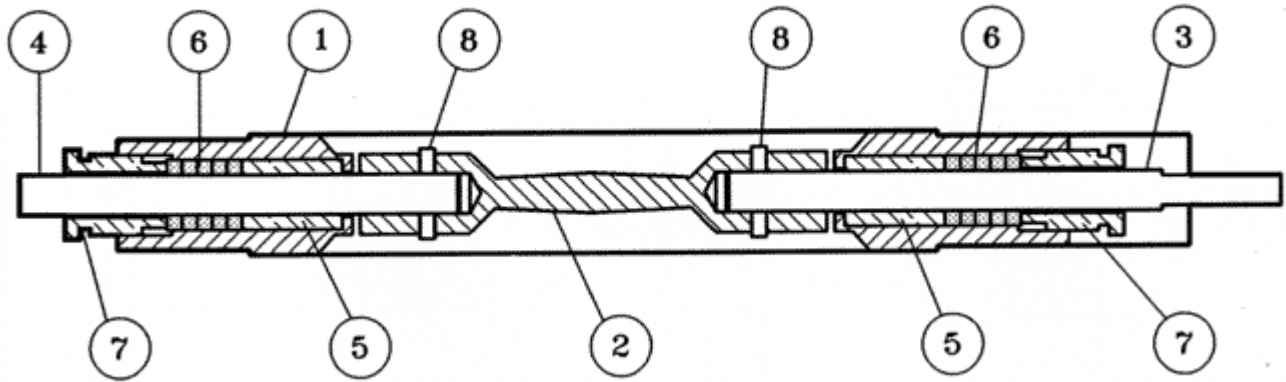
PDC Valve Coatings:

Consult Factory

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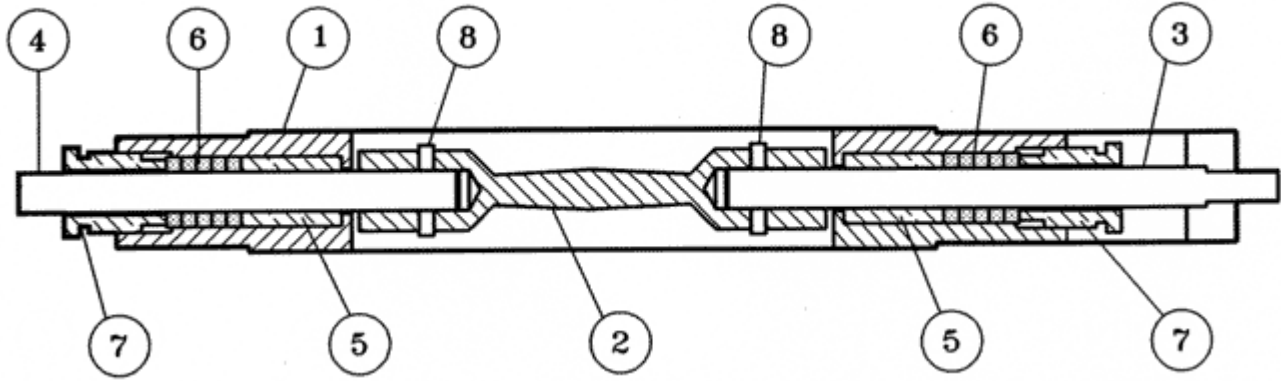


**Excel Series 40
2" Through 14" Valve size**



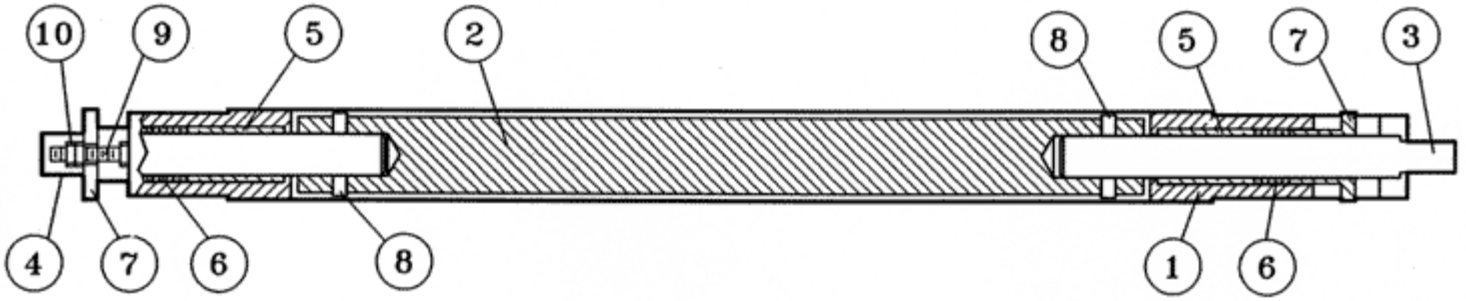
Item	Descripton	Qty.
1	Body	1
2	Disc	1
3	Power Shaft	1
4	Idle Shaft	1
5	Bushing	2
6	Braided Packing	10
7	Adjustable Packing Nut	2
8	Shaft Retaining Pin	2

Excel Series 40
16" Through 24" Valve size



Item	Descripton	Qty.
1	Body	1
2	Disc	1
3	Power Shaft	1
4	Idle Shaft	1
5	Bushing	2
6	Braided Packing	10
7	Adjustable Packing Nut	2
8	Shaft Retaining Pin	2

Excel Series 40
26" Through 60" Valve size



Item	Descripton	Qty.
1	Body	1
2	Disc	1
3	Power Shaft	1
4	Idle Shaft	1
5	Bushing	2
6	Braided Packing	10
7	Adjustable Packing follower	2
8	Shaft Retaining Pin	2
9	Threaded Stud	4
10	Hexed Jam Nut	12

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***Torque, Lb-In, Required for
PDC Swing Thru Butterfly Valves
with Disc in Closed Position for
Temperatures up to 450° Fahrenheit**

*Below torques only apply to normal clean service conditions.

VALVE SIZE	PRESSURE DROP ACROSS DISC IN CLOSED POSITION, PSI																
	0.5	1	5	10	15	20	25	30	40	50	60	70	80	90	100	125	150
2	50	50	52	53	55	56	58	59	62	65	68	71	74	77	80	88	95
2.5	50	51	53	55	58	60	63	65	70	75	80	85	90	95	100	113	125
3	50	51	54	57	61	64	68	71	78	85	92	99	108	113	120	138	155
4	51	52	59	67	78	84	93	101	118	135	152	169	188	203	220	263	-
5	51	53	63	75	88	100	113	125	150	175	200	225	250	275	300	-	-
6	52	54	69	88	107	126	145	164	202	240	278	316	354	-	-	-	-

VALVE SIZE	PRESSURE DROP ACROSS DISC IN CLOSED POSITION, PSI																
	0.5	1	3	5	8	10	13	15	20	25	30	35	40	45	50	60	70
8	124	128	158	195	233	270	308	345	420	495	570	645	720	795	-	-	-
10	129	137	171	205	256	290	341	375	460	545	630	715	800	885	970	1,140	1,310
12	132	143	189	235	304	350	419	465	580	695	810	925	1,040	1,155	1,270	-	-
14	139	157	231	305	416	490	601	675	860	1,045	1,230	-	-	-	-	-	-

VALVE SIZE	PRESSURE DROP ACROSS DISC IN CLOSED POSITION, PSI																
	0.5	1	2	4	5	7	9	10	12	14	15	17	19	20	22	24	25
16	223	245	335	425	560	650	785	875	1,100	1,325	1,550	1,775	2,000	-	-	-	-
18	235	270	410	550	760	900	1,100	1,250	1,600	1,950	2,300	2,650	-	-	-	-	-
20	245	290	380	580	650	830	1,010	1,100	1,280	1,460	1,550	1,730	1,910	2,000	2,180	2,380	2,450
22	261	322	444	688	810	1,054	1,298	1,420	1,664	1,908	2,030	2,274	2,518	2,640	-	-	-
24	280	359	518	836	995	1,313	1,631	1,790	2,108	2,426	2,585	2,903	-	-	-	-	-

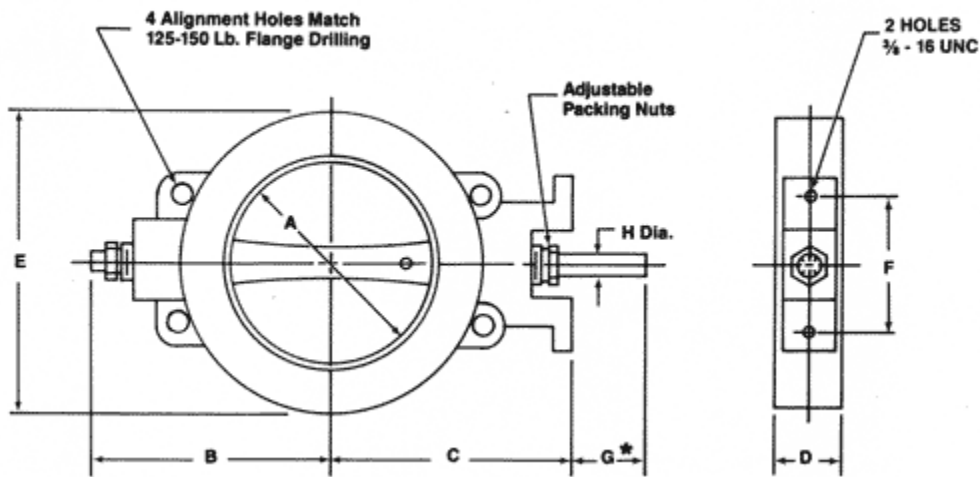
VALVE SIZE	PRESSURE DROP ACROSS DISC IN CLOSED POSITION, PSI																	
	0.5	1.2	2	2.5	3	3.5	4	4.5	5	5.5	6	7	8	9	10	11	12	
26	403	505	710	1,120	1,325	1,735	2,145	2,350	2,760	3,170	-	-	-	-	-	-	-	
28	429	687	816	945	1,074	1,203	1,332	1,461	1,590	1,719	1,848	2,106	2,364	2,622	2,880	3,138	3,396	
30	460	779	938	1,098	1,257	1,417	1,576	1,738	1,695	2,055	2,214	2,533	2,652	3,171	3,490	3,809	-	
32	592	976	1,168	1,380	1,552	1,744	1,936	2,128	2,320	2,512	2,704	3,088	3,472	3,856	4,240	4,624	5,008	
34	632	1,096	1,328	1,560	1,792	2,024	2,256	2,488	2,720	2,952	3,184	3,648	4,112	4,576	5,040	-	-	
36	677	1,231	1,508	1,785	2,062	2,339	2,616	2,693	3,170	3,447	3,724	4,278	4,832	5,386	-	-	-	
38	727	1,381	1,708	2,035	2,362	2,689	3,016	3,343	3,670	3,997	4,324	4,978	5,832	-	-	-	-	
40	883	1,648	2,030	2,413	2,795	3,178	3,560	3,943	4,325	4,708	5,090	5,855	6,620	7,385	-	-	-	
42	945	1,834	2,278	2,723	3,167	3,612	4,058	4,501	4,945	5,390	5,834	6,723	7,612	-	-	-	-	
44	1,013	2,039	2,552	3,065	3,578	4,091	4,804	5,117	5,630	6,143	6,656	7,882	-	-	-	-	-	
46	1,088	2,264	2,852	3,440	4,028	4,616	5,204	5,792	6,380	6,968	7,586	-	-	-	-	-	-	
48	1,170	2,510	3,180	3,850	4,520	5,190	5,860	6,530	7,200	-	-	-	-	-	-	-	-	
54	1,510	3,029	3,788	4,548	5,307	6,067	6,826	7,586	8,345	-	-	-	-	-	-	-	-	
60	1,856	3,588	4,424	5,280	6,136	6,992	7,848	9,560	-	-	-	-	-	-	-	-	-	

While this information is presented in good faith and believed to be accurate, PDC inc. does not guarantee results from reliance upon such information. Nothing contained herein is to be construed as a warranty or guarantee, expressed or implied, regarding the merchantability, fitness or any other matter with respect to the products. PDC Inc. reserves the right, without notice, to alter or improve the designs of the products herein.

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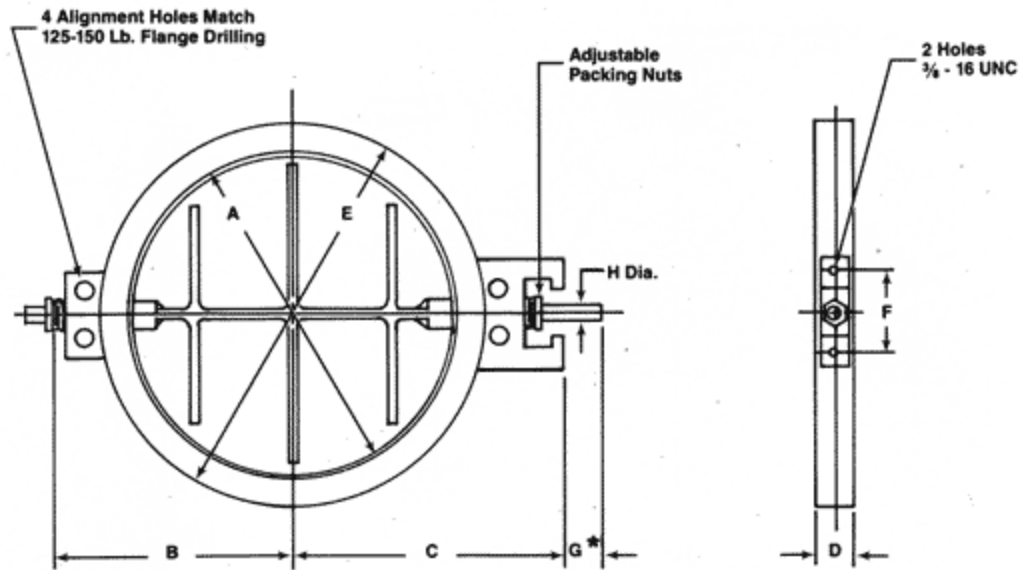


Typical Dimensions: 2" thru 14"



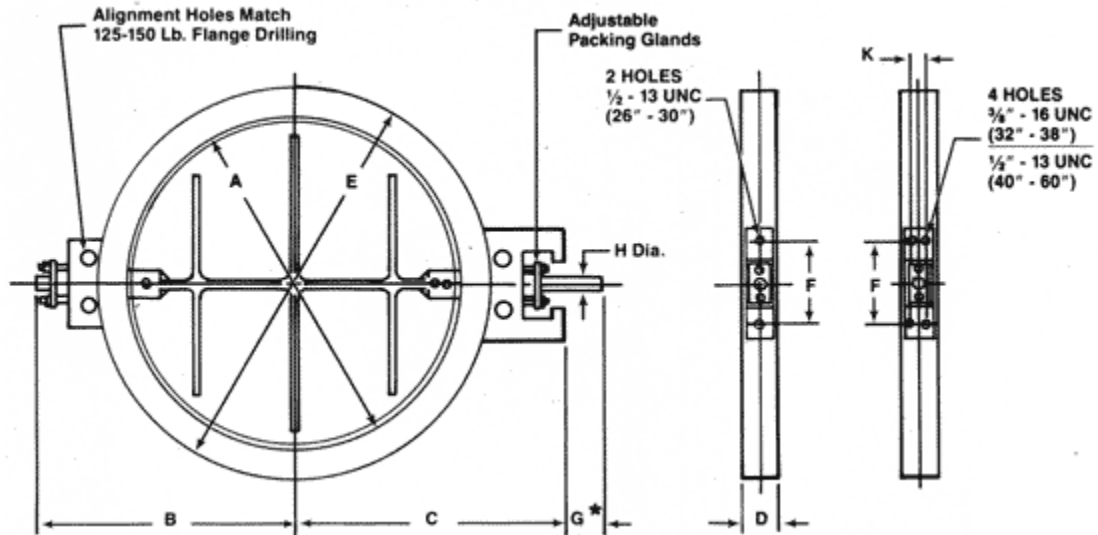
2" thru 14"									
Size	A	B	C	D	E	F	H	Max. ΔP	Approx. Wt. (LB.)
2"	2	5-3/8	5-3/8	1-1/2	3-7/8	4-1/4	1/2	150	9#
2-1/2"	2-1/2	5-5/8	5-5/8	1-1/2	4-5/8	4-1/4	1/2	150	10#
3"	3	5-7/8	5-7/8	1-1/2	5-5/8	4-1/4	1/2	150	11#
4"	4	6-3/8	6-3/8	1-1/2	6-3/8	4-1/4	1/2	125	12#
5"	5	6-7/8	6-7/8	1-1/2	7-1/2	4-1/4	1/2	100	15#
6"	6	7-3/8	7-3/8	1-1/2	8-1/2	4-1/4	1/2	80	17#
8"	8	9-5/8	9-5/8	1-7/8	10-3/4	5-1/8	3/4	90	32#
10"	10	10-5/8	10-5/8	1-7/8	13	5-1/8	3/4	70	40#
12"	12	11-5/8	11-5/8	1-7/8	15-1/4	5-1/8	3/4	50	50#
14"	13-1/8	12-1/8	12-1/8	1-7/8	16-3/8	5-1/8	3/4	30	70#

Typical Dimensions: 16" thru 24 "



16" thru 24 "									
Size	A	B	C	D	E	F	H	Max ΔP	Approx Wt. (Lb.)
16"	15-1/8	14-1/2	14-1/2	2-3/8	18-1/4	5-1/8	1	40	122#
18"	17-1/8	15-1/2	15-1/2	2-3/8	20-3/4	5-1/8	1	30	155#
20"	19-1/8	16-1/2	16-1/2	2-3/8	22-3/4	5-1/8	1	25	192#
22"	21-1/8	17-1/2	17-1/2	2-3/8	25	5-1/8	1	20	232#
24"	23-1/8	18-1/2	18-1/2	2-3/8	27	5-1/8	1	17	276#

Typical Dimensions: 26" thru 60 "



Alignment holes shown match ANSI 125/150 lb. flange bolt circle and number of holes.
 On valves 32" and larger, the diameter of the holes adjacent the shaft on both ends,
 match ANSI 25/AWWA C207B.

26" thru 60 "										
Size	A	B	C	D	E	F	H	K	Max. Δ P	Approx. Wt. (Lb.)
26"	25-1/8	21	21	2-3/4	29	5-1/8	1-1/4	-	14	324#
28"	27-1/8	22	22	2-3/4	31	5-1/8	1-1/4	-	12	376#
30"	29-1/8	23	23	2-3/4	33-1/2	5-1/8	1-1/4	-	11	432#
32"	31	25	25	3-1/4	35-1/2	7	1-1/2	1-3/8	12	512#
34"	33	26	26	3-1/4	37-1/2	7	1-1/2	1-3/8	10	578#
36"	35	27	27	3-1/4	40	7	1-1/2	1-3/8	9	648#
38"	37	28	28	3-1/4	42-3/4	7	1-1/2	1-3/8	8	722#
40"	39	30-1/4	30-1/4	4	44-3/4	7	1-3/4	2	9	888#
42"	41	31-1/4	31-1/4	4	46-3/4	7	1-3/4	2	8	970#
44"	43	32-1/4	32-1/4	4	49-1/2	7	1-3/4	2	7	970#
46"	45	33-1/4	33-1/4	4	51-1/2	7	1-3/4	2	6	1163#
48"	47	34-1/4	34-1/4	4	53-3/4	7	1-3/4	2	5	1267#
54"	53	37	37	6	60-1/4	10	2	2	5	1840#
60"	59	40	40	7	66-3/4	10	2-1/4	2-1/2	5	2600#

* **"G"** Length and configuration of the shaft end will vary to accommodate specific actuators. Refer to the accessory section for typical flatted, keywayed, and hexed end configurations available.

MAX. ΔP is based on 0° disc position, using standard materials of construction at a maximum temperature of 450° Fahrenheit.

Consult factory for MAX. ΔP for elevated temperatures.

Process Development & Control, Inc. reserves the right to make design improvements and/or change dimensions without notice.

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Cv Values for PDC Swing Thru Butterfly Valves

By definition, Cv is the flow coefficient of a control device or flow restriction. Cv is defined as the number of US gallons of 60°F water per minute which will flow through the given restriction with a one pound per square inch pressure drop.

Cv Values

(Flow in GPM of 60°F water at 1 psi pressure drop, specific gravity=1)

Valve Size	Disc Angle, Degree								
	10	20	30	40	50	60	70	80	90
2"	2	5	11	20	34	49	64	83	90
2.5"	4	8	20	34	56	84	126	178	194
3"	6	14	30	51	85	132	202	279	370
4"	13	28	54	98	159	257	391	550	747
5"	21	43	88	158	265	429	636	913	1,272
6"	30	63	126	228	382	632	955	1,370	1,999
8"	53	111	225	406	680	1,125	1,698	2,591	3,853
10"	83	174	351	635	1,063	1,759	2,655	4,052	6,361
12"	120	252	506	914	1,531	2,533	3,826	5,835	9,164
14"	143	302	606	1,096	1,835	3,035	4,584	6,992	10,981
16"	191	400	805	1,455	2,436	4,118	6,388	9,835	12,266
18"	244	513	1,032	1,865	3,123	5,279	8,185	12,608	15,725
20"	305	640	1,287	2,326	3,896	6,584	10,209	15,725	19,612
22"	372	781	1,570	2,838	4,753	8,033	12,456	19,186	23,929
24"	445	936	1,882	3,401	5,696	9,626	14,926	22,990	28,674
26"	526	1,105	2,221	4,015	6,723	11,364	17,619	27,139	33,848
28"	613	1,288	2,589	4,679	7,836	13,245	20,536	31,632	39,451

Valve Size	Disc Angle, Degree								
	10	20	30	40	50	60	70	80	90
30"	706	1,485	2,985	5,395	9,035	15,270	23,676	36,468	45,484
32"	800	1,682	3,382	6,112	10,235	17,299	26,823	41,315	51,528
34"	907	1,906	3,832	6,926	11,599	19,603	30,395	46,817	58,392
36"	1,020	2,144	4,311	7,791	13,047	22,052	34,191	52,664	65,684
38"	1,140	2,396	4,818	8,707	14,581	24,644	38,211	58,855	73,405
40"	1,267	2,682	5,352	9,674	16,200	27,380	42,453	65,390	81,555
42"	1,400	2,942	5,915	10,691	17,904	30,260	46,919	72,268	90,134
44"	1,540	3,236	6,507	11,760	19,693	33,284	51,608	79,491	99,143
46"	1,687	3,544	7,126	12,879	21,568	36,453	56,520	87,057	108,508
48"	1,840	3,866	7,774	14,049	23,527	39,765	61,656	94,968	118,446
54"	2,340	4,916	9,885	17,865	29,910	50,566	78,403	120,762	150,617
60"	2,899	6,093	12,250	22,139	37,065	62,663	97,159	149,653	186,650

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How To Order

*Material Option Followed By an Asterisk, May Not be Routinely Carried in Inventory, and May Result in Longer Deliveries Than Normal.

Use the following table to determine your part number:

Example: to code an Excel 8 " swing thru butterfly valve with 316 stainless steel body, 316 stainless steel disc, 316 stainless steel shaft, glass filled Teflon bushing, pure Teflon braid packing, 316 stainless steel nut, and cataloged flatted shaft would be as follows:

40-0080-1-3-3-2-4-3-2-CF

When "Special" materials are selected, be sure to completely describe on purchase order.

Please provide the following information:

- **Flow Media**
- **Operating Temperature F°**
- **No. of [open/close] cycles/day**
- **Line Pressure (PSIG) = _____.**
- **Delta P = _____.**

