Posidyne® X CLASS™

OIL SHEAR CLUTCH/BRAKES

VALUE ENGINEERED FOR HIGHEST PERFORMANCE AT LOWEST COST PER CYCLE

WHERE INNOVATION NEVER RUNS DRY

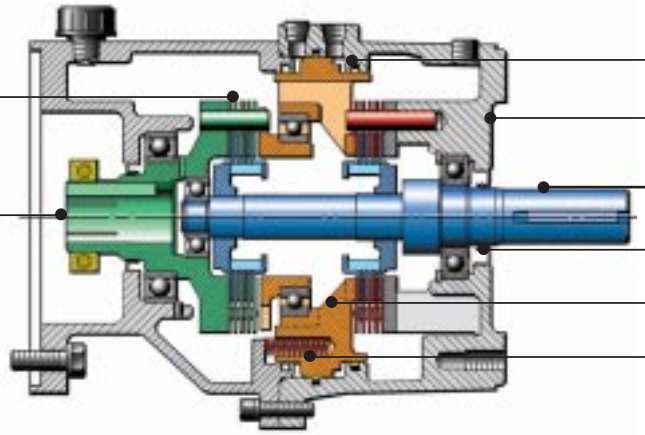
FORCE CONTROL®

UNBEATABLE SAVINGS

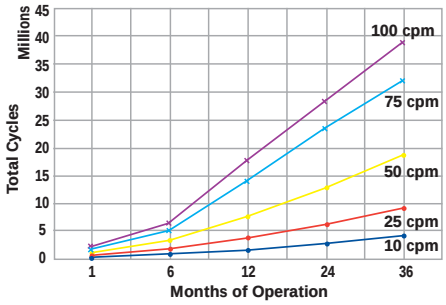
ON WEAR AND CARE

Posidyne® X Class clutch/brakes feature multi-disc clutch stack and brake stack with friction surfaces consisting of alternating steel plates and advanced friction material on steel discs.

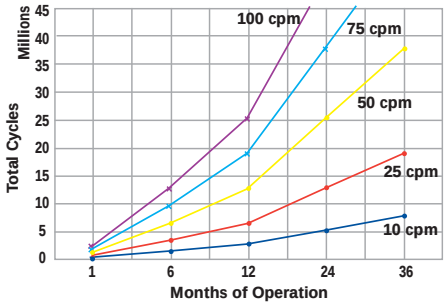
- Packaged, fully assembled/tested
- Simplified double C-face mounting
- Horizontal or vertical input
- Two operating logics: Air-set clutch/spring-set brake; air-set clutch/air-set brake.
- Multiple friction discs cooled in recirculating transmission fluid
- Low maintenance: annual oil change
- Hard-coat epoxy finish highly resistant to rust and chipping.



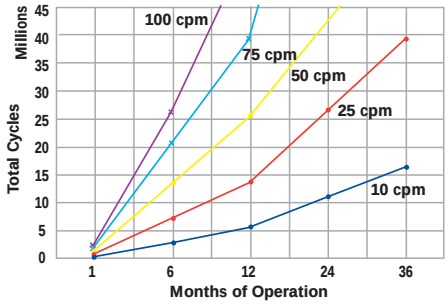
Total Cycle Calculator
8 hours/day • 5 days/week



Total Cycle Calculator
16 hours/day • 5 days/week



Total Cycle Calculator
24 hours/day • 7 days/week



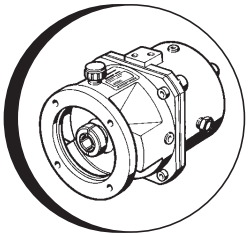
BREAKTHROUGH

PERFORMANCE

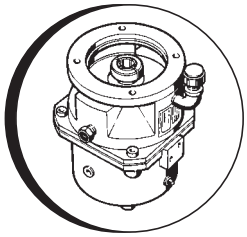
The Posidyne® X Class clutch/brakes are designed and tested to operate over 40 million trouble free cycles with only occasional oil changes and no adjustment - ever! This unheard of life expectancy allows the Posidyne® X Class clutch/brakes to be used on applications previously thought impossible to do using a clutch/brake. How many cycles do you require to meet your machines design life? Use the total Life Cycle Calculator to determine expect-

MOUNTING CONFIGURATIONS

The Posidyne® X Class clutch/brakes may be mounted in three configurations (horizontal, vertical input up and vertical input down) to allow the most flexability in machine design.



HORIZONTAL



VERTICAL INPUT-UP

VERTICAL INPUT-DOWN

SIMPLIFIED C-FACE

MOUNTING SYSTEM

The Posidyne® X Class C-face mount adds a new level of convenience to this classic configuration. An innovative Clamped-Split-Quill absolutely stops play that could deform the key and keyway in high-torque, rapid cycling applications. The new clamp design splits the input quill four ways at 90° intervals. A clamp collar fits over the quill to give 360° clamping effect when tightened down. The keyway is centered in one of the splits in the quill to securely lock the key on both sides.

MOUNTING SYSTEM

ACCESSORIES

To make the X Class clutch/brakes brakes adaptable to many applications, several accessories are available.

Mounting Foot Kit

A foot kit is available for those applications where the Posidyne X Class clutch/brake may not be mounted on a C-Face motor or reducer. The foot kit includes two feet that bolt onto the clutch/brake. They are made of heavy gauge steel X1 and X2, or cast iron X3 and X4, and hard coat epoxy coated. *Note: The Posidyne clutch/brake cannot be C-Faced mounted to the motor or reducer with feet installed.*

Male Input Shaft Assembly

For applications where a belt drive may be required on the input, an input shaft assembly is available to convert the quill input to an extended shaft. It consists of a mounting plate with a bearing and stainless steel shaft that bolts to the C-Face mounting flange. The shaft is then locked into the Split Clamped Quill.

Manifold Mounted Valve

Add the convience and performance of a Manifold Mounted Valve. Mounting the valve directly on the unit eliminates extra plumbing, improves response time, increases cycle rate, and improves positioning accuracy. A Manifold Mounted Valve with adapter is available from Force Control Industries, Inc. for use on all units.

ACCESSORIES AND KITS

Foot Mounting Kit

X1 & X2 Foot Kit (Pair of feet)	02-X1-FT-KIT
X1 & X2 Foot Kit Washdown (Steel It Epoxy)	02-X1-FT-KITW
X3 & X4 Foot Kit (Pair of feet)	02-X4-FT-KIT
X3 & X4 Foot Kit Washdown (Steel It Epoxy)	02-X4-FT-KITW

Extended Input Shaft Assembly

Input Shaft Ass'y. X1 5/8" shaft	02-X1-IA-KIT
Input Shaft Ass'y. X1 5/8" shaft, Washdown	02-X1-IA-KITW
Input Shaft Ass'y. X2 7/8" shaft	02-X2-IA-KIT
Input Shaft Ass'y. X2 7/8" shaft, Washdown	02-X2-IA-KITW
Input Shaft Ass'y. X3 1-1/8" shaft	02-X3-IA-KIT
Input Shaft Ass'y. X3 1-1/8" shaft, Washdown	02-X3-IA-KITW
Input Shaft Ass'y. X4 1-3/8" shaft	02-X4-IA-KIT
Input Shaft Ass'y. X4 1-3/8" shaft, Washdown	02-X4-IA-KITW

Pneumatic Control Valves (Requires kit below)

Control Valve, 431A Series, P, A & C logic, **Manifold Mounted**, 120 VAC/60Hz, 1.0 Cv	09-56-152-08
Control Valve, 431A Series, P, A & C logic, **Manifold Mounted**, 24 VDC, 1.0 Cv	09-56-153-08
Control Valve, 431A Series, P logic, **In-line Mounted**, 120 VAC/60Hz, 1.0 Cv	01-56-154-08
Control Valve, 431A Series, P logic, **In-line Mounted**, 24 VDC, 1.0 Cv	01-56-155-08
Control Valve, 35A Series, A & C logic, 120 VAC/60Hz, .25 Cv, ship loose	01-56-147-08
Control Valve, 35A Series, A & C logic, 7.3 watt 24 VDC, .21 Cv, ship loose	01-56-148-08

Manifold Kits (Required for Manifold Mounted Valves)

Manifold Kits for 431A Series control valve, size X1, X2 & X3, P Logic	09-56-931-00
Manifold Kits for 431A Series control valve, size X4, P Logic	09-56-932-00
Manifold Kits for 431A Series control valve, size X1, X2 & X3, A & C Logic or Posistop	09-56-933-00
Manifold Kits for 431A Series control valve, size X4, A & C Logic or Posistop	09-56-934-00

Note: All valves are washdown duty

SELECTION

The correct size Posidyne® X Class clutch/brakes can generally be selected by horsepower of the motor and RPM using the size selection chart at right. Simply find the motor horsepower and speed and follow down to the correct X Series clutch/brake.

	1800 RPM									1200 RPM						
HP	½	¾	1	1½	2	3	5	7½	10	½	¾	1	1½	2	3	5
X1	X1	X1	X1							X1	X1					
X2			X2	X2	X2							X2	X2			
X3						X3	X3							X3		
X4								X4	X4						X4	X4

For more difficult applications contact factory for an application specialist.

When high cycle rates are required (40+) a thermal horsepower calculation should be done to assure heat dissipation capability. For more information or application assistance please contact a Force Control Industries application specialist.

OPERATING SPECIFICATIONS

Size	Logic	Clutch Torque			Brake Torque			Max RPM	Max KE per Engmt. (Ft. Lbs.)	Avg. Thermal HP			Cyclic Inertia (Lb. Ft.^{2})	Air per Engmt. (Cu. In.)	Oil Capacity (Oz.)			Overhung Load Cap. (Lbs. Pull)	Weight (Lbs.)
		Static (Lb. In.)	Dyn. (Lb. In.)	Air Pr. (PSI)	Static (Lb. In.)	Dyn. (Lb. In.)	Air Pr. (PSI)			Horiz.	VIU	VID			Horiz.	VIU	VID		
X1-2P2	P	110	95	60	110	95	60	1800	3,765	.40	.40	.40	.005	1.52	37	54	50	167	42
X1-2A2	A	90	77	80	49	42	----												
X1-2C2	C	99	85	70	----	----	----						.0033						
X2-3P3	P	220	189	60	220	189	60	1800	7,530	.50	.40	.44	.006	1.52	37	54	50	167	42
X2-3A3	A	179	154	80	98	84	----												
X2-3C3	C	198	170	70	----	----	----						.0048						
X3-4P4	P	512	440	70	512	440	70	1800	15,060	.41	.40	.34	.011	1.61	53	59	74	464	57
X3-4A4	A	359	309	80	189	163	----												
X3-4C4	C	468	402	80	----	----	----						.0087						
X4-5P5	P	1039	894	60	1039	894	60	1800	21,150	.66	.63	*	.049	2.21	76	107	110	597	103
X4-5A5	A	777	668	80	444	382	----												
X4-5C5	C	1000	860	70	----	----	----						.0426						

**Contact Force Control Factory. VIU Vertical Input Up. VID Verticle Input Down. THP Ratings were developed under these parameters - 100° F ambient temperature & 220° F maximum oil temperature. Overhung Load Capacity is based on load at midpoint of output shaft extension.*

HOW TO ORDER

X [ ] – [ ] [ ] [ ] [ ] N

X Class *Posidyne*

Unit Size

1	X Class Size 1
2	X Class Size 2
3	X Class Size 3
4	X Class Size 4

Input Module

2	5/8" U - 4-1/2" AK	X1, X2 Only
3	7/8" U - 4-1/2" AK	X1, X2 Only
4	1-1/8" U - 8-1/2" AK	X3 Only
5	1-3/8" U - 8-1/2" AK	X4 Only

Logic

A	Spring Set Brake/Air Set Clutch
C	Clutch Only
P	Air Set Clutch & Brake

Output Module

2	5/8" U - 4-1/2" AK	X1, X2 Only
3	7/8" U - 4-1/2" AK	X1, X2 Only
4	1-1/8" U - 8-1/2" AK	X3 Only
5	1-3/8" U - 8-1/2" AK	X4 Only

Package Type

S	Standard
F	Food Grade, Fluid Only
W	Washdown, Stainless Steel Paint
E	Washdown, White Epoxy Paint

Options

N	None

Posidyne® X CLASS
CLUTCH/BRAKES

X-TREME PERFORMANCE – NOW VALUE-ENGINEERED FOR 1/2 TO 10 HP DRIVES

WASH DOWN

For wash down applications in food processing facilities, the optional wash down modification is available. This modification consists of nickel-plated shafts, stainless steel locking collar on the Clamped Split Quill, Steel It epoxy coating, stainless steel fasteners, and non-corrosive breather and sight gauge.

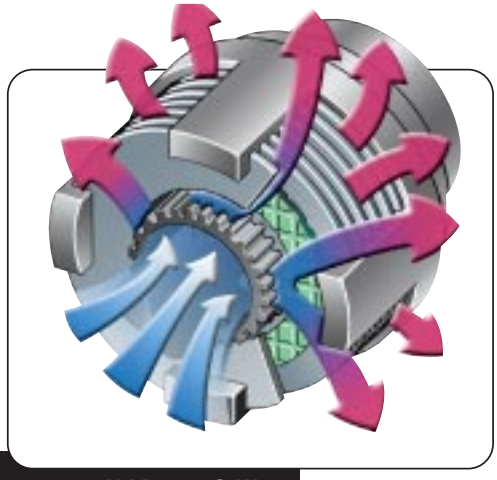
New Posidyne® X Class clutch/brakes let you eliminate the typical line stops, the frequent clutch/brake repairs and replacements. Here's the reliability you need for today's 24/7 manufacturing demands. Here's speed and precision that can let you run at higher cycle rates and quality levels, or design new machines for higher performance.

Value engineering gives you X times the performance possible from conventional dry clutch/brakes:

- 2X-10X higher cycle rates – 200 CPM is not unusual
- 10X longer design life – designed and tested for over 40 million cycles
- 4-5X higher thermal rating for fade-free stopping, no burned clutches
- Clamped-Split-Quill reduces keyway problems in aggressive applications

MORE NUMBERS YOU'LL LIKE:

- Zero adjustments, ever
- Up to 50% lower cost per index than disposable dry clutch/brakes
- Up to 88% lower internal inertia delivers ultra-quick acceleration, which combines with high torque-handling capability to put maximum useable horsepower into your drive.



FLUID FLOW

Posidyne® X Class clutch/brakes transmit torque by shearing automatic transmission fluid between multiple friction discs. The fluid absorbs the heat of engagement and dissipates it through the housing. The recirculating fluid minimizes wear, resulting in exceptional service life, up to 10 times longer than conventional dry clutch/brakes.

THE OIL-SHEAR DIFFERENCE

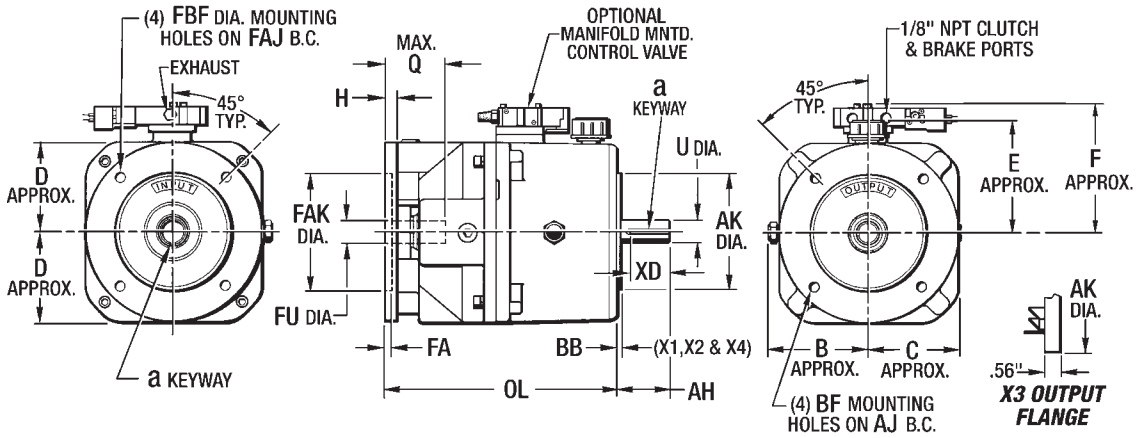
No ordinary clutch/brakes, Posidyne® X Class units use proprietary oil-shear technology perfected over more than 30 years by Force Control Industries. Posidyne® X Class clutch/brake units have proven themselves in the toughest production environments, including automotive, lumber, building materials, packaging, warehousing, and food processing – where there is absolutely no time for downtime.

With the X Class, Force Control transforms oil-shear technology into affordable, off-the-shelf designs. Four standard stocking models – X1, X2, X3 and X4 – cover the most popular size ranges for clutch/brakes. Convenient double C-face mounting and handy Clamped-Split-Quill allow drop-in, bolt-up installation.

FORCE CONTROL INDUSTRIES, INC. 1.800.869.3244 XCLASS@FORCECONTROL.COM

DIMENSIONAL

SPECIFICATIONS

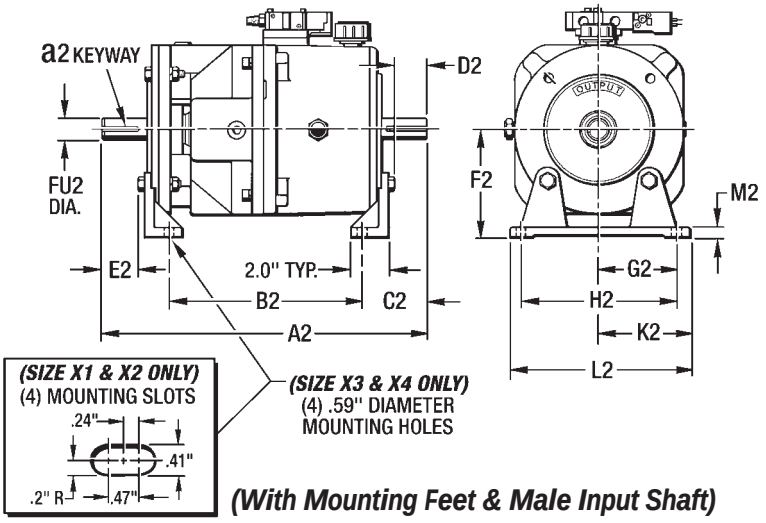


UNIT SIZE	INPUT DIMENSIONS *(Inches)*							KEYWAY a *(Inches)*	OUTPUT DIMENSIONS *(Inches)*							OVERALL DIMENSIONS *(Inches)*					
	FAK	FA	FU	H	Q	FBF	FAJ		AK	BB	U	AH	XD	BF	AJ	B	C	D	E	F	OL
X1	4.500	.28	.625	.50	2.38	.41	5.875	3/16 x 3/32	4.500	.16	.625	2.06	1.50	3/8-16 Tap x .75 Dp.	5.875	3.87	3.44	3.44	4.29	4.94	9.00
X2			.875								.875	2.12	1.75								
X3	8.500	.19	1.125	.80	2.75	.53	7.250	1/4 x 1/8	8.500	----	1.125	2.63	2.12	1/2-13 Tap x 1.00 Dp.	7.250	4.44	4.44	4.50	5.09	4.94	11.00
X4			1.375	.63	3.13			5/16 x 5/32		.25	1.375	3.13	2.5			5.00	4.50		5.67	6.00	11.75

Reduced reaction time - By mounting the valve directly on the unit losses in the airline, especially if they are long, reduce the amount of air moving from the valve to the actuation piston. This can reduce reaction time of the clutch or brake by up to 15 milliseconds. This also increases the maximum cycle rate considerably.

Increased consistency - This reduction in response time also leads to more consistency for more accurate stopping position in critical applications. Because the air doesn't have to flow through an air hose to the unit the air volume is more consistent applying pressure instantly.

Reduced cost – Using the manifold mounted valve eliminates the need to purchase a valve, mounting of the valve, and connecting airlines to the unit. Overall cost can be reduced considerably. It also assures that the best valve for the application is used.



(With Mounting Feet & Male Input Shaft)

UNIT SIZE	DIMENSIONS *(Inches)*												
	A2	B2	C2	D2	E2	F2	G2	H2	K2	L2	M2	FU2	a2
X1	13.69	7.16	3.16	1.50	1.83	4.50	3.19	6.38	3.75	7.50	.15	.6250	3/16 x 3/32
X2	13.75		3.21									.8750	
X3	17.00	9.50	3.63	1.88	2.20	5.25	4.00	8.00	4.75	9.50	.50	1.125	1/4 x 1/8
X4	18.62	10.25	4.13	2.36	2.62							1.375	5/16 x 5/32

Force Control Industries, Inc.
Headquarters & Plant
3660 Dixie Highway
Fairfield, Ohio 45014
Phone: 513-868-0900
Fax: 513-868-2105

email: xclass@forcecontrol.com
www.forcecontrol.com/xclass

WHERE INNOVATION NEVER RUNS DRY™

ISO 9001 CERTIFIED

Made in USA

catalog xseries0603 AP25M0603