FLSmidth

Components
Product Catalog

www.flsmidth.com

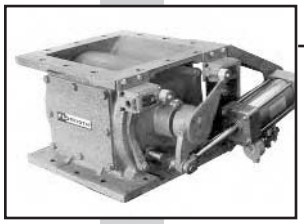
Discharge, Gates and Locks

Jet-Pulse™ Collector

Unifilter Dust Collector

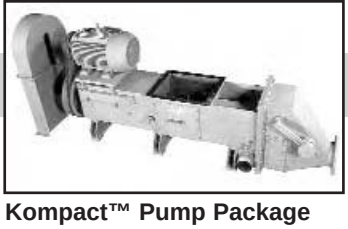
Bulk Unloading Accessories

Airslide® Aeration



Cutoff Valve

Positive Displacement Blowers and Packages



Kompact™ Pump Package

Feeders & Gates

Discharge/Converger Valve

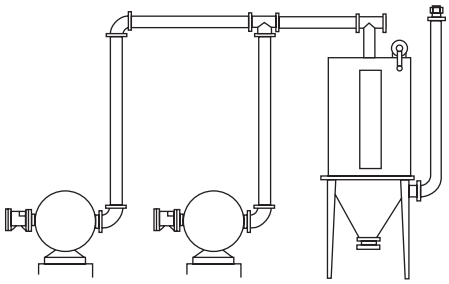
Cast Iron Access Door

Non-return Valves

STANDARD PRODUCTS AVAILABLE FROM STOCK OR SHORT DELIVERY

Jet-Pulse™ Dust Collector

Compressor Intake Filter



Plant Air and
Conveyor Compressor

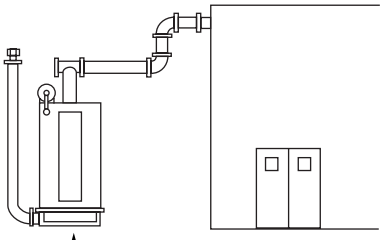
Abrasion
Resistant Fittings

Compressor Exchange

Material Level Indicators
Rotary and Radio Frequency

Gravity Diverter Gate

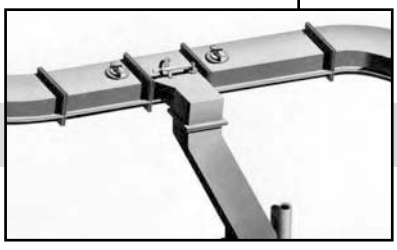
Airslide™
Butterfly
Flowgate



Blower and
Control Room
Filter

BC Intake Filter

Bulk Trailer/Railcar
Loading Spout



Observation & Cleanout Port

Airslide® Breather Filter

NOTES:

TABLE OF CONTENTS

TABLE OF CONTENTS

GROUP F: AFTERMARKET PROGRAM, cont'd.

COMPRESSOR EXCHANGE and ACCESSORIES

NOTE: All data contained in this catalog is for reference only. Subject to change without notice.

AIR SUPPLY

FEEDERS	INDUSTRY CODES
Compressor Exchange *(See Group F)*	**C, M, PL, P, S, G**
Blowers and Packages	**C, M, PL, P, S, G**
Compressor Intake Filter	**C, M, P, S, G**

INDUSTRY CODES

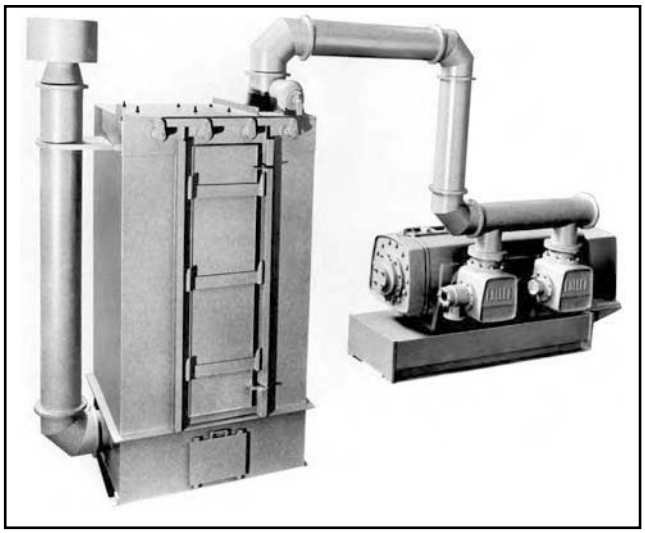
C = CEMENT
M = MINERALS
PL = PLASTICS
P = POWER
S = STEEL
G = GENERAL

COMPRESSOR INTAKE FILTER

CLOTH TYPE

APPLICATION:

A complete read-to-install compressor intake air filter which combines generous cloth area and high efficiency. Suitable for pre-filtering air for other applications. Huge dust holding capacity by Air Filter Institute standards. Less bothersome and easier to maintain than conventional oil-wetted or paper element add-on filters.



SPECIFICATION:

General

This unit is a single compartment multi-bag collector for inlet capacities up to 12,000 CFM (340 cmm) at ambient temperatures. Compressor filter sizes have a maximum air-to-cloth ratio of 10.0 to 1.

Bags

Three-in-one multibags are made of heavy woven spun polyester for long life.

Shaker

Model BC-.25 thru BC-1 are operated by manual shakers. Models BC-2 thru BC-7 have shaker motor drives with heavy duty shaking mechanisms. 230/460 volt AC, 60Hz., 3 phase.

Housing and Supports

Model BC-.25 and BC-.50 are fabricated of fourteen (14) gauge carbon steel. Models BC-1 thru BC-7 are made of twelve (12) gauge carbon steel. Models BC-5 thru BC-7include formed steel supports providing a four foot clearance between discharge opening and floor.

Discharge

On Models BC-.25 thru BC-4 dust discharges into an enclosed box. Larger Models BC-5 thru BC-7 use a pyramid hopper with a 7" (175 mm) square cast iron slide gate.

Accessories

A gauge is provided to indicate pressure differential across the filter. When the differential reaches 8" W.G. the compressor should be stopped or switched to air by-pass operation so that the unit can be cleaned.

Filter Aid

Although not essential, an initial charge of filter aid for cement application will result in top quality air. Reseeding is not necessary for cement application after shaking.

Cleaning

Efficient air filtration will be achieved for several months before cleaning is necessary when the FLSmidth BC Filter is properly installed and seeding carried out according to the instructions.

Assembly

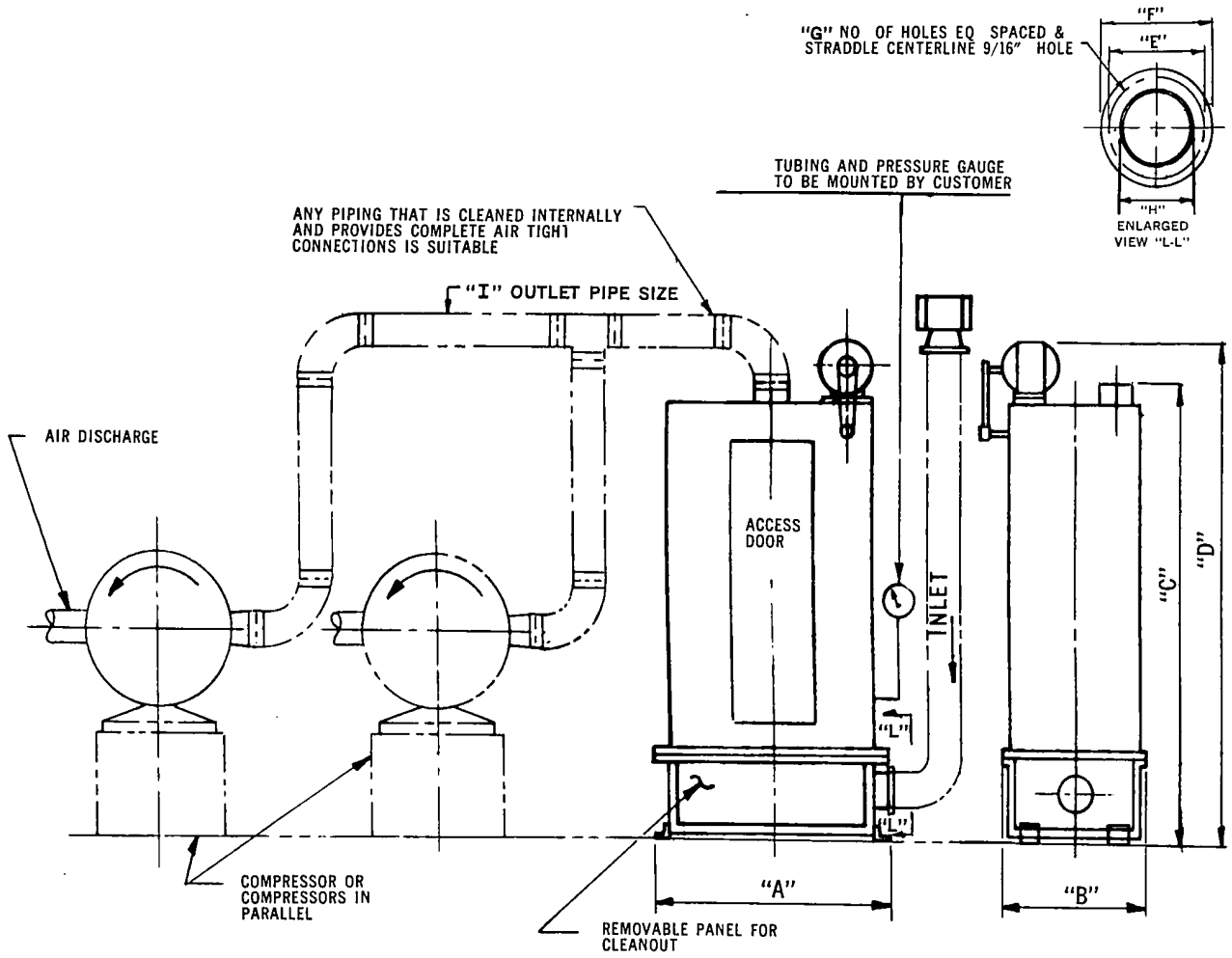
Unit is shipped pre-assembled. Simple, easy-to-install instructions are provided with each package. Customer supplies for intake and clean air piping to the compressor.

COMPRESSOR INTAKE FILTER

CLOTH TYPE

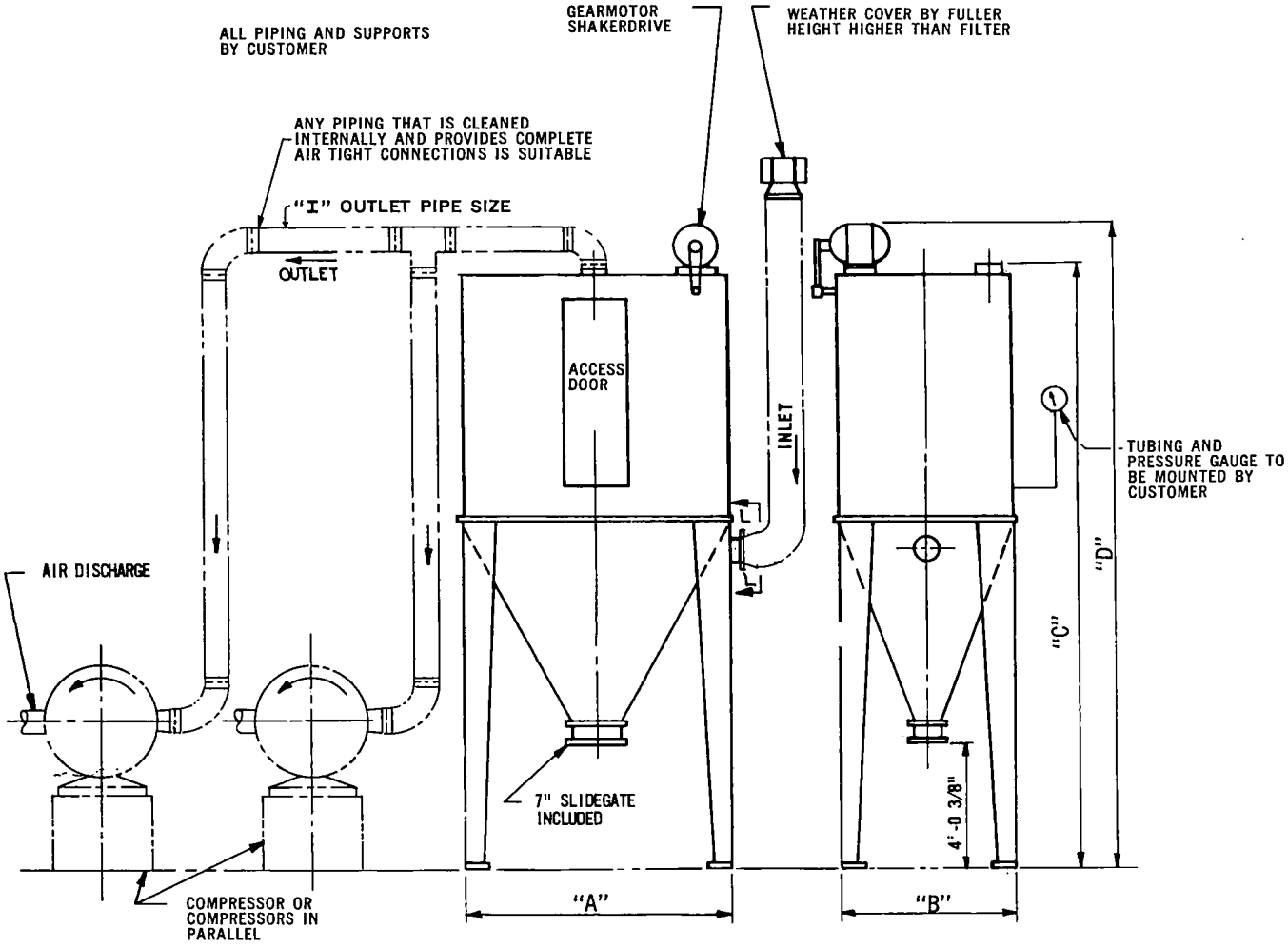
EFFICIENCY:

Several compressors may be connected to a single high volume filter.
With its unique design, FLSmidth's Compressor Intake Filter provides maximum exposure to the incoming airstream. The result is a high degree of airborne particulate capturing capacity, with an absolute minimum of maintenance. Dust particles smaller than 1/4 micron are trapped and held to provide super-clean air.



BC-.25, BC-.50, BC-1, BC-2, BC-3, BC-4 SIZE
TYPICAL INSTALLATION

Dust Collector Model No.	Part No.	Compressor Volume C.F.M.	Cloth Area Sq. Ft.	OVERALL DIMENSIONS A	B	C	D	Dia.B.C. E	Flange O.D. F	No. of Holes G	Inlet Pipe H	Outlet Pipe I	Motor H.P.
BC-.25	313-77-4-0108-00	250	25	2' 6 7/8"	17 3/4"	5' 5 3/8"	__	5 15/16"	7"	8	4"	4"	__
BC-.50	313-77-4-0107-00	500	50	4' 1"	7 3/4"	5' 5 3/8"	__	7 7/8"	9"	8	6"	6"	__
BC-1	313-77-4-0109-00	1000	100	4' 1"	18"	8' 6"	__	10"	11"	8	8"	8"	__
BC-2	313-74-4-0132-00	2000	200	2' 8"	3' 8"	8' 6 1/8"	9' 1 1/16"	1' 2 1/4"	1' 4"	12	12"	10"	1/3
BC-3	313-74-4-0133-00	4000	400	4' 8"	3' 8"	9' 0 13/16"	9' 7 3/4"	1' 7 1/4"	1' 9 1/4"	16	16"	14"	1/3
BC-4	313-74-4-0134-00	6000	600	6' 8 1/8"	3' 8"	9' 0 13/16"	9' 7 3/4"	1' 9 1/4"	1' 11 1/4"	16	18"	16"	1/3



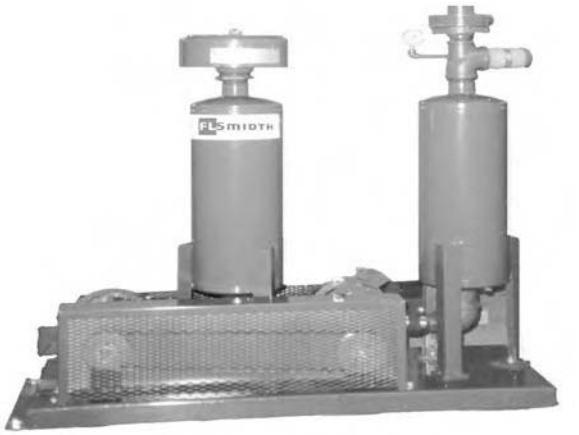
BC-5, BC-6, BC-7 SIZE
TYPICAL INSTALLATION

Dust CollectorModel No.	Part No.	CompressorVolume C.F.M.	Cloth AreaSq. Ft.	OVERALL DIMENSIONS				Dia.B.C.	FlangeO.D.	No. of Holes	InletPipe	Outlet Pipe	MotorH.P.
				A	B	C	D	E	F	G	H	I	
BC-5	313-74-4-0135-00	8000	800	4' 6"	6' 6"	16' 5 3/4"	16' 11 7/8"	2' 2"	2' 4 1/4"	20	22"	20"	1
BC-6	313-74-4-0136-00	10000	1000	5' 6"	6' 6"	16' 5 3/4"	16' 11 7/8"	2' 3 3/4"	2' 6"	20	24"	22"	1
BC-7	313-77-3-0109-00	12000	1200	6' 6"	6' 6"	16' 5 3/4"	16' 11 7/8"	2' 7 3/4"	2' 10"	28	28"	24"	1

BLOWERS AND PACKAGES

APPLICATION: FLSmidth's 75+ years experience in Pneumatic Conveying equates to a reliable air source sizing program customized for your specific requirements.

Pressure or vacuum packages are designed with the accessories you require, quality constructed at a competitive price.



Skid-mounted Blower Package

SPECIFICATION:

PRESSURE

- Roots / Sutorbilt* Positive Displacement Blowers
- Name brand AC motors to suit
- V-belt or direct drive
- OSHA steel guard
- Structural steel base (non-elev.)
- Inlet filter / silencer
- Discharge silencer
- Relief valve & instrument spool w/ gauge
- Assembly & painting
- Check valve

VACUUM

- Roots / Sutorbilt* Positive Displacement Blowers
- Name brand AC motors to suit
- V-belt or direct drive
- OSHA steel guard
- Structural steel base (non-elev.)
- Inlet filter / silencer
- Inlet discharge silencer
- Relief valve & instrument spool w/ gauge
- Assembly & painting
- Check valve

OPTIONAL ACCESSORIES & DESIGNS

- Instrumentation
- Line coolers, heaters
- Control / starters
- Pushbutton stations
- Special motors
- Dryers
- External lubrication systems

Notes:
Replacement blowers can also be supplied at a competitive price by furnishing the blower serial number to FLSmidth.

* Other manufacturers available upon request

STANDARD PRODUCT GROUP B

CONVEYING EQUIPMENT AND ACCESSORIES

PNEUMATIC	INDUSTRY CODES
Airslide Aeration Unit Packages for Bins and Silos	C, M, PL, P, S, G
Aeration Units (pad type) for Bins and Silos	C, M, PL, P, S, G
Fullerator Aeration / Vibration Pad	C, M, PL, P, S, G
Airslide™ Observation Ports	C, M, P, S, G
Airslide Railcar Breather / Filter	PL, G
Air Filters for Railcars	PL, G
Bulk Unloading Accessories for Bins and Silos	C, M, P, S, G
Pneu-Boost™ Conveying Booster	C, M, P, S, G, PL
Fulload™ Automatic Operation Model A	PL
Loading Spout (telescopic) for Bulk Trailer / Railcar	C, M, PL, P, S, G
Fuller-Kinyon™ Pump Exchange *(See Group F)*	C, M, P, S, G
Kompact™ Pumps	C, M, P, S, G

INDUSTRY CODES

C = CEMENT
M = MINERALS
PL = PLASTICS
P = POWER
S = STEEL
G = GENERAL

FOR BINS AND SILOS

APPLICATION: FLSmidth Airslide Aeration Unit Packages are supplied for installation as aeration units on the sloped conical bottoms of bins and silos to aid in the withdrawal of dry, relatively free-flowing material. Slope angles should be no less than 45° from the horizontal with silo diameters up to 21 feet (6.4 m). Units can be applied to other storage configurations.

SPECIFICATION:

General

Each Airslide Aeration Unit Package consists of standard FLSmidth 8-inch (200 mm) open-type Airslide conveyor units in lengths of 5 and 10 feet (1.5 and 3 m) depending on the slope length of the conical storage area. Each package consists of three or six Airslide conveyor units for layout as three or six spoke patterns. Three spoke patterns are normally used with materials which have good fluidizable characteristics. Six spoke patterns provide maximum aeration for difficult materials which can be fluidized.

Airslide conveyor units have been successfully used in handling fine, dry materials such as cement, gypsum, soda ash, fly ash and dusts, barites, bentonite, hydrated lime, ground limestone, ground ores, alumina, alumina hydrate, catalysts, silica, phosphates, talc, detergent and soap powder, calcined magnesite and other materials. Material should be generally no less than 40 percent passing 200 mesh.

Construction

Each unit is a standard 8-inch (200 mm) Airslide conveyor unit [10-inch (250 mm) installation width] constructed of fabricated steel plate covered with a specially woven polyester fabric which can handle materials up to 350°F (175°C).

Air Supply

A source of clean, dry air is required. Minimum SCFM for each package is listed. Pressures should be 3 - 5 PSIG (.21 - .35 Kg/cm^2) minimum at the aeration unit. Blower units, such as Sutorbilt/Roots blower units offered by FLSmidth, are a reliable, economical source of air for the aeration packages.

ORDER DATA: SPECIFY - AIRSLIDE AERATION UNIT PACKAGE NUMBER

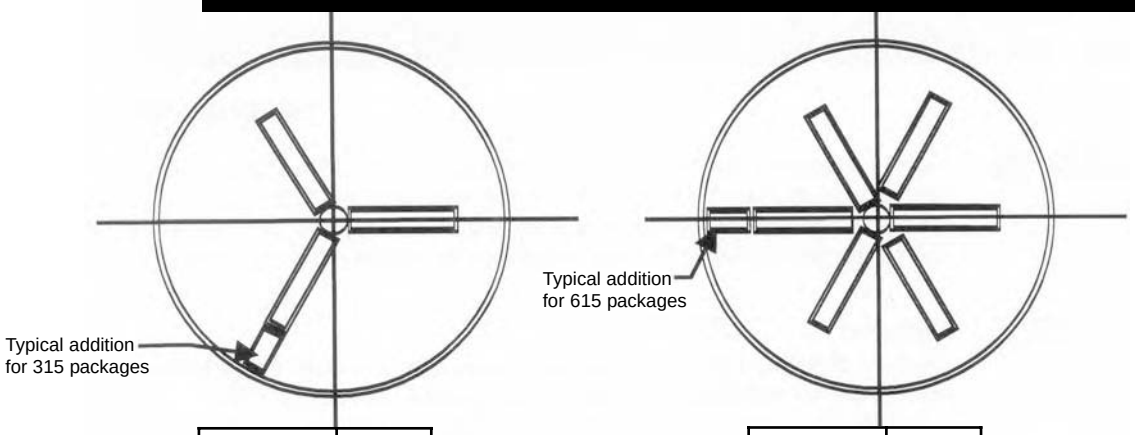
When ordering specific packages it is important to determine the slope length of the silo hopper within the limitations mentioned in paragraph I. Airslide aeration units should be sized to run no less than one half of the slope length.

Materials which have relatively free-flowing properties usually require a three spoke array; whereas a six spoke array should be used with fluidizable materials which require maximum aeration.

Packages 315 and 615 are offered when more complete clean-out in the spring line area of larger silos is required.

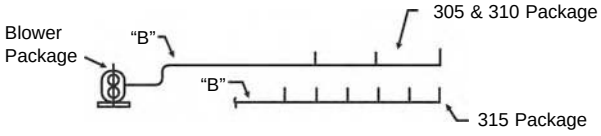
A. Description: Airslide Aeration Unit Packages - 3 spoke arrangement			
Package Number	Hopper Slope Length (ft.)	Airslide Aeration Unit	Minimum Air Requirements (SCFM)
305	6' - 10'	three - 5 foot units	100
310	11' - 15'	three - 10 foot units	200
315	16' - 21'	three - 5 foot units & three 10 foot units	300
B. Description: Airslide Aeration Unit Packages - 6 spoke arrangement			
Package Number	Hopper Slope Length (ft.)	Airslide Aeration Unit	Minimum Air Requirements (SCFM)
605	6' - 10'	six - 5 foot units	200
610	11' - 15'	six - 10 foot units	400
615	16' - 21'	six - 5 foot units & six 10 foot units	600

AIRSLIDE™ AERATION UNIT PACKAGES

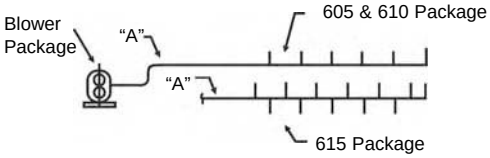


AERATION PACKAGE NO	'B' PIPE SIZE
305	2"
310	2 1/2"
315	3"

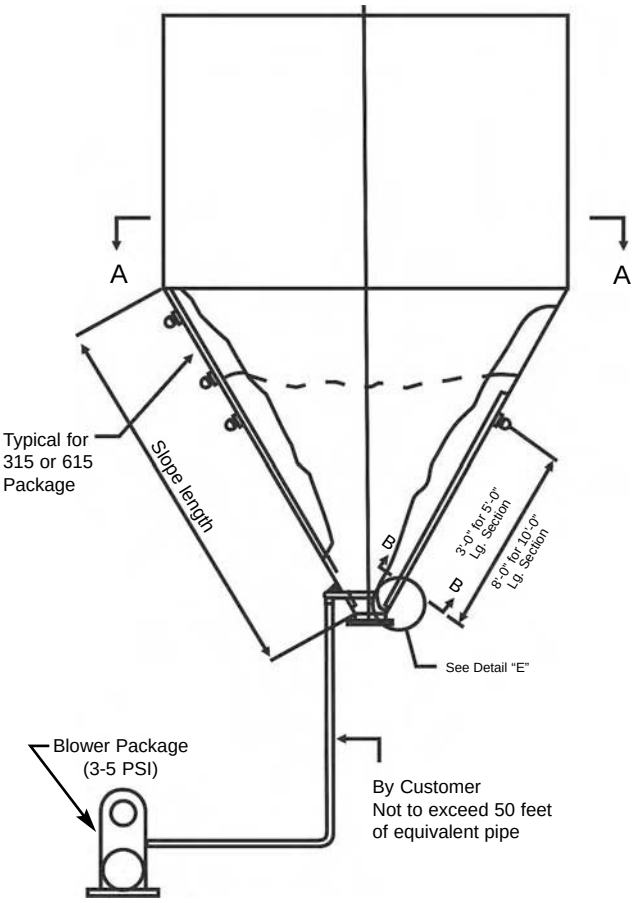
AERATION PACKAGE NO	'A' PIPE SIZE
605	2 1/2"
610	3"
615	4"

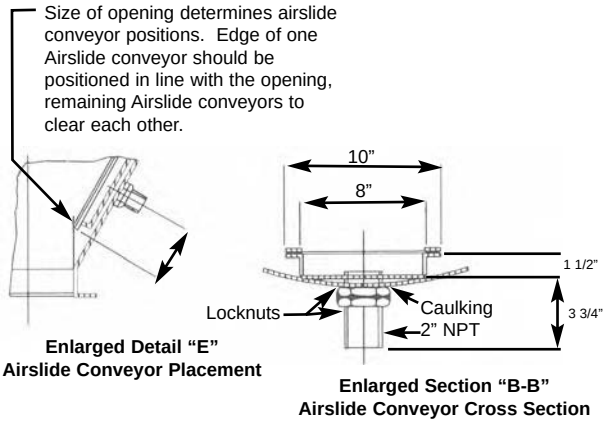


PIPING SCHEMATIC
THREE SPOKE ARRANGEMENT



PIPING SCHEMATIC
SIX SPOKE ARRANGEMENT





Enlarged Detail "E"
Airslide Conveyor Placement

Enlarged Section "B-B"
Airslide Conveyor Cross Section

NOTE:

1. Inside of cone should be smooth and flat. If not, fillers must be employed to afford continuous support throughout length of Airslide conveyor section.
2. Locknuts must be pulled tight against cone plate to insure that the section rests against inside face of cone for its entire length.
3. Avoid any burning or welding near exposed Airslide fabric. If burning or welding is necessary, protect the exposed fabric from sparks or hot metal.
4. Each Airslide conveyor section is furnished with two tank nipples & caps. One cap must be removed for air connection.

AERATION UNITS (PAD TYPE)

APPLICATION: FLSmidth aeration units provide efficient and effective means for applying fluidization air to bins and silos to promote flowability and product withdrawal. The aeration units are offered in two types: floor-mounted and flange-mounted. Aeration units can be used individually or in a multiple combination with air supplied from a common header.

SPECIFICATION: **General**

Floor-mounted aeration units are normally used for installation on the flat or sloping floor of silos and are constructed with a pressed steel casing into which the aeration plate is cemented.

Flange-mounted aeration units employ a cast iron casing with flanged face for surface mounting on the bin cone or slope sheets.

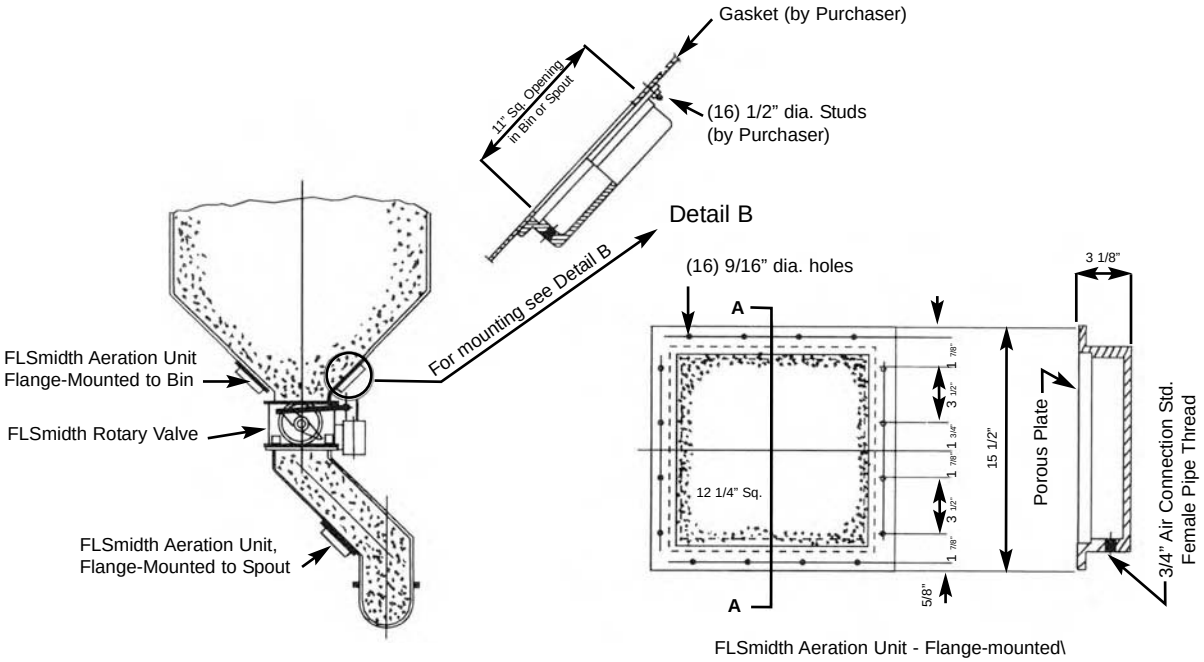
Both types utilize a porous ceramic plate as the basic aeration element and are fitted with standard pipe connections to admit the fluidizing air.

The aeration units can be used with materials up to 400°F (200°C). Units also feature replaceable filter elements for greater economy.

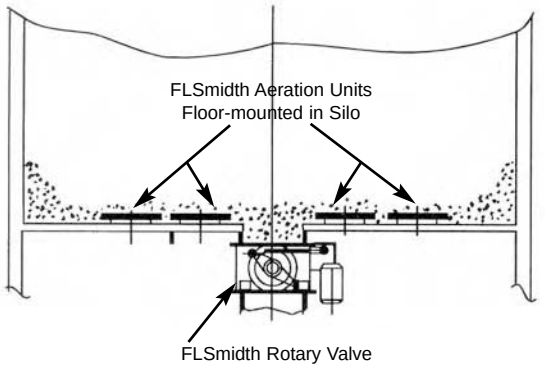
Air requirements:15 cfm (.42 cmm) at 3 psi (.21 Kg/cm^2).

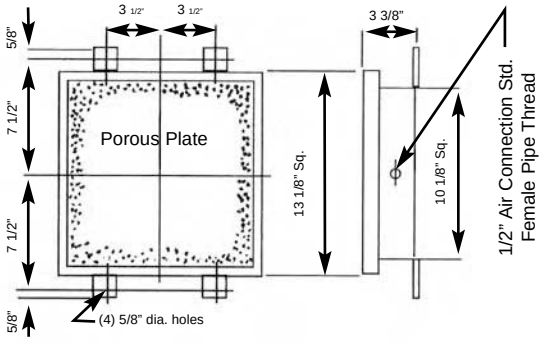
ORDER DATA: Specify quantity, description amid part number.

Description	Part Number	Approx. Weight (lbs)
A. Floor-Mounted Aeration Unit	108-60-2-2314-00	30
B. Flange-Mounted Aeration Unit	108-59-2-2946-00	50



FLSmidth Aeration Unit - Flange-mounted\
(weight approx. 50 lbs.)



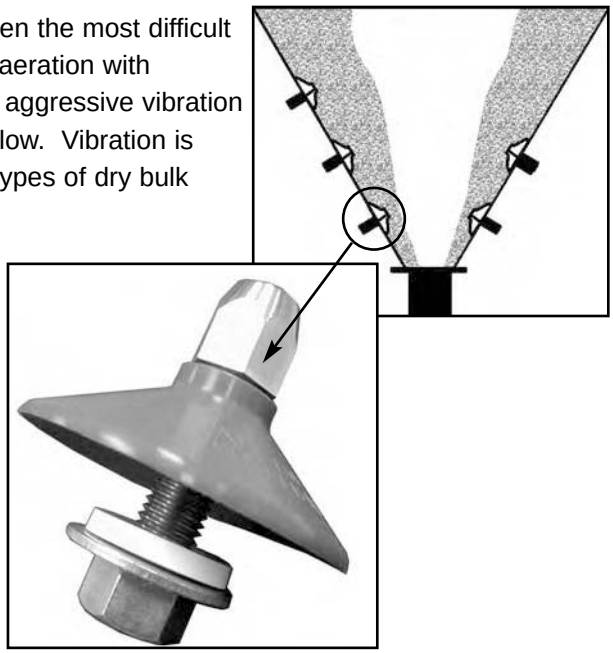


FLSmidth Aeration Unit - Floor-mounted
(weight approx. 30 lbs.)

HIGH FLOW AERATION / VIBRATION PAD

APPLICATION:

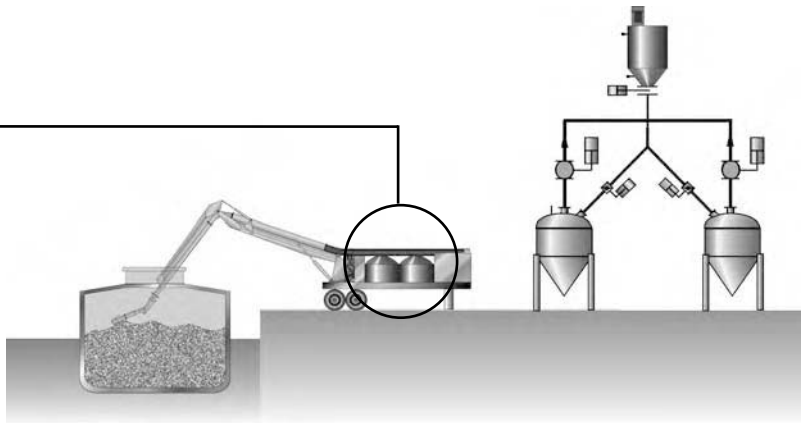
The Fullerator aeration pad solves even the most difficult material flow problems by combining aeration with vibration. The rubber pad creates an aggressive vibration on the vessel wall as the result of airflow. Vibration is very effective to enhance flow for all types of dry bulk materials.



- Economical
- Durable construction
- Easy installation
- Self-cleaning
- Suitable for abrasive materials
- Uses low or high pressure air
- Vibratory action promotes air flow
- Use with granular or powdered materials
- 303 stainless steel stud with hex head for easy removal
- Use in any type of silo, bin or tank
- Rated to 350°F (177°C), intermittent to 425°F (218°C)
- High flow design - solves problems where others fail

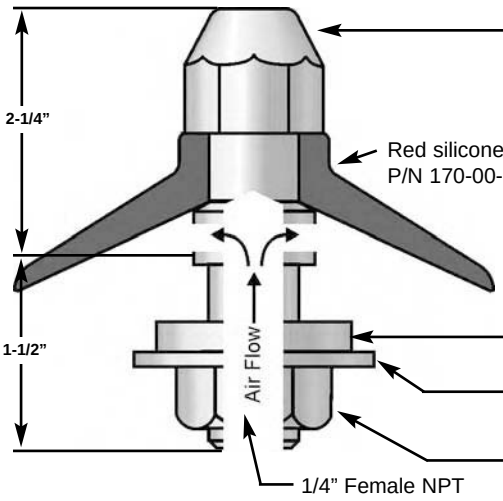
Solves Flow Problems with Many Materials:

- Alumina
- Ash
- Bag house dust
- Barlite
- Bentonite
- Carbon black
- Cement
- Clay
- Calcium carbonate
- Cornstarch
- Cement clinker
- Diatomaceous earth
- Fly ash
- Flour
- Flourospar
- Gypsum
- Lime
- Perlite
- PVC resin/plastic powders
- Salt
- Sand
- Soda ash
- Sugar
- Soap powder
- Talc
- and more

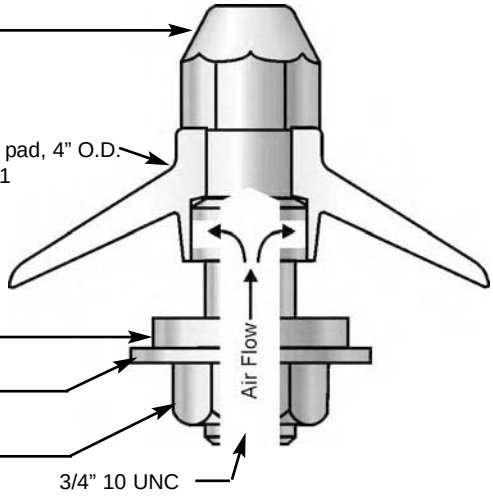


HIGH FLOW AERATION / VIBRATION PAD

Assembly P/N 170-00-2-5215-01



Assembly P/N 170-00-2-5216-01



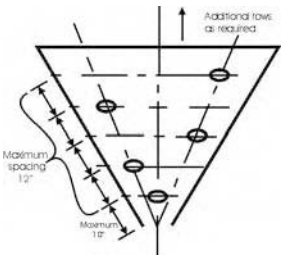
Red silicone pad: Low cracking pressure (10 iwg) design. Recommended for general purpose applications requiring high flow and/or low pressure air supplies (PD blower).

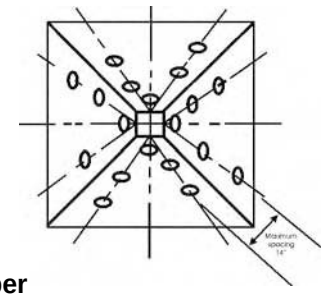
White silicone pad: Double check valve design has a cracking pressure (2.6 psi) to provide additional insurance that material will not backfeed. Recommended for food grade and difficult applications.

Installation

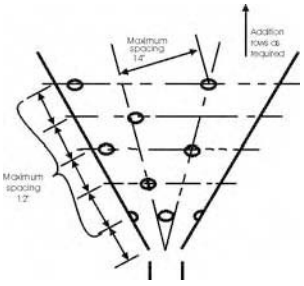
Locate Fullerators to facilitate multiple channels of material flow. The maximum spacing between each aeration pad in a single channel should not exceed 14". Difficult materials may require closer spacing and additional channels.

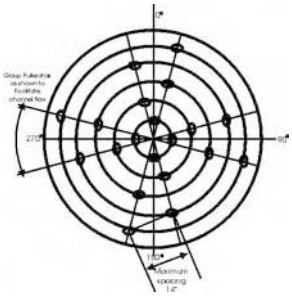
Typical Installation Layout



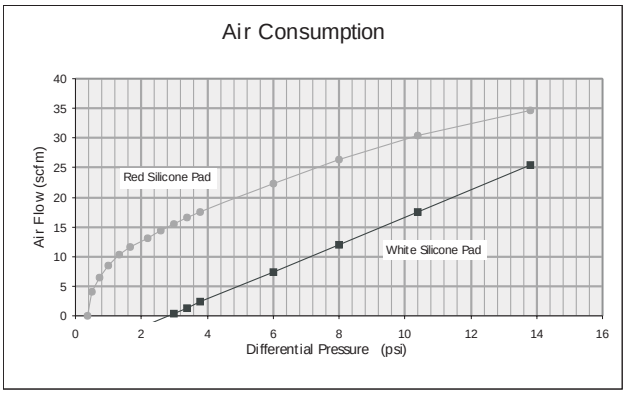


Pyramid Hopper





Round Hopper



Air Consumption

Fullerators use a special high flow design to permit the flow of additional aeration air. Fullerators pass over 50% more aeration flow than comparable designs, helping to accommodate the most difficult materials. Some applications require the control of aeration airflow by use of a throttling valve and / or pressure-reducing regulator. Apply aeration air only when material flow is required. Airflow may be continuous or applied intermittently for difficult applications. Pulsing air on and off reduces air consumption and helps shock the material to flow. Consult FLSmidth for additional recommendations.

AIRSLIDE® OBSERVATION PORTS

CIRCULAR ----- CAST IRON

APPLICATION:

FLSmidth Airslide Observation Ports are designed to provide service or observation access for Airslide conveyors. Use of the ports permits access to key areas such as inlets and discharge areas of each run or branch, at diversion points or after a flow control device. Other useful applications.

SPECIFICATION:

General

Simple mechanical design and construction using a cast iron base mounting and cover with steel tee bolt and hold down bar. Rotating the hold down bar counterclockwise permits cover removal. Reverse procedure locks bar against cast integral catches on the mounting. Turning the threaded tee bolt increases or decreases pressure on the cover and the bar against the catches. The cover uses an “O” ring seal made of “Buna N” synthetic material to form a tight seal.

Other

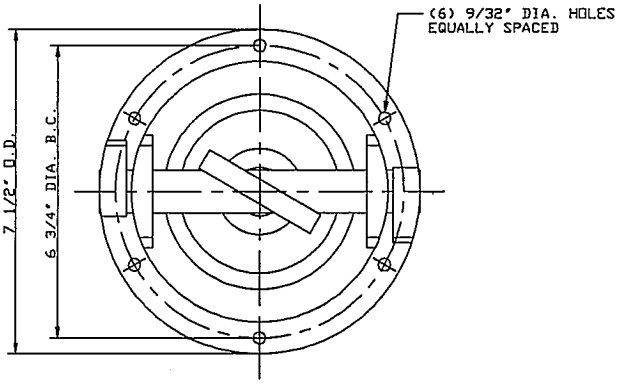
FLSmidth can make available ports constructed of stainless steel and other materials to meet specific customer requirements.

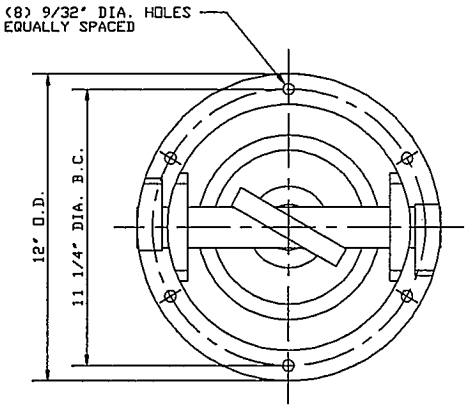
ORDER DATA:

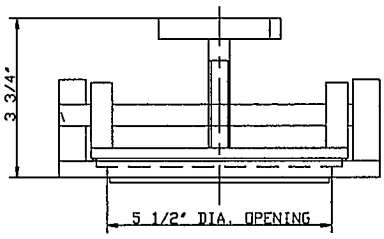
Specify quantity, description, size and part number.

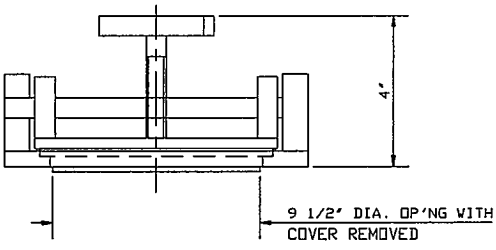
DESCRIPTION: AIRSLIDE OBSERVATION PORT (C.I.)

Size Opening	Application Airslide Width (In.)	Part No.
5 1/2”	8 through 12	108-21-5-0074-00
9 1/2”	14 through 24	108-57-2-0585-00









AIRSLIDE® RAILCAR BREATHER/FILTER

APPLICATION:

The FLSmidth Airslide Car Breather/Filter is specifically designed for use on the GATX Airslide Car when highly sanitary or contamination free conditions are desirable during loading and unloading operations.

In pressure service, the car breather permits the venting of fluidizing air during unloading or of conveying air while the car is being loaded. In vacuum service, it serves as air inlet.

SPECIFICATION:

General

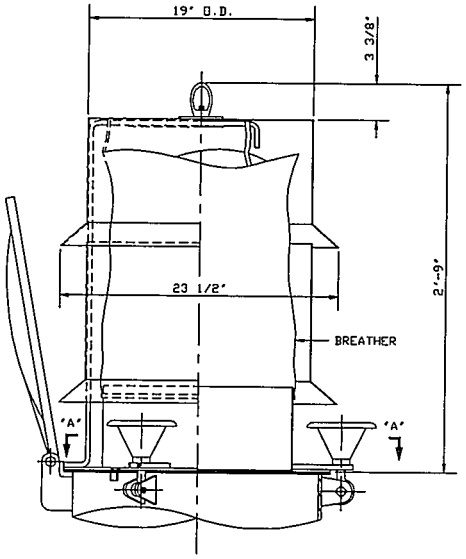
The FLSmidth Airslide Car Breather is constructed of corrosion resistant aluminum and stainless steel for all weather applications.

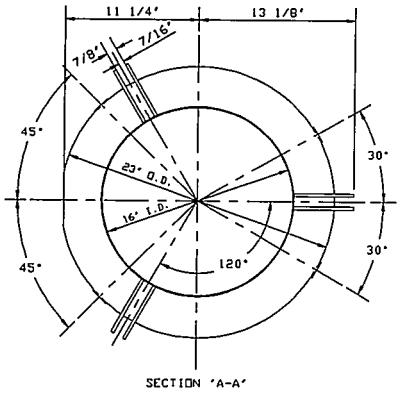
Mounting

The breather is mounted on one of the open loading hatches the Airslide Car and is fitted with lugs to permit secure clamping in position using the hatch cover bolts.

Filter

The breather uses a replaceable woven Dacron fabric filter element with high permeability and filtering efficiency up to 300 CFM. Larger air volumes will require additional breathers on the car.





APPROX. WEIGHT 25 LBS.

ORDER DATA:

Specify quantity, description and part number.

Description	Part No.	Approx. Wt. (lbs.)
A. Airslide® Railcar Breather/Filter	101-72-3-5002-01	25
B. Replacement Dacron Filter Element	101-55-1-1689-01	3

PORTABLE MODELS LV-1 & HV-2

APPLICATION:

FLSmidth Railcar Air Filters provide clean venting for vacuum unloading of bulk material railcars. Can be used as a filtering inlet or to provide make-up air for any vacuum unloading system where protection from material contamination is desirable.

Portable Model LV-1 is used at the air inlet of a vacuum unloading nozzle to filter the intake air to the conveying system.

Portable Model HV-2 is employed on one of the loading hatches of the railcar to filter air drawn into the car. Standard unit fits 20 inch (500 mm) diameter hatch. For GATX Airslide® Railcars consult AIRSLIDE® RAILCAR BREATHER/FILTER contained in this group.

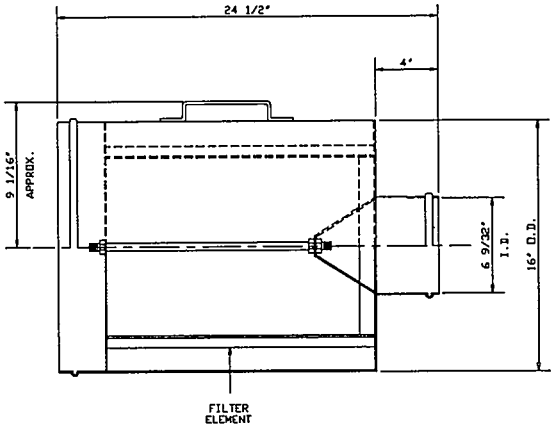
SPECIFICATION:

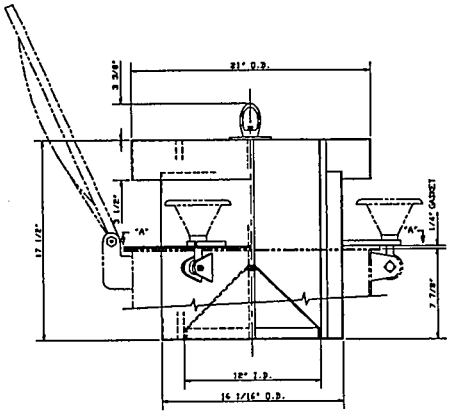
General

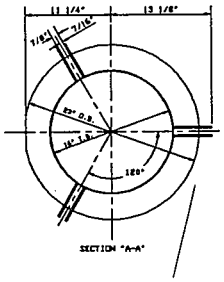
FLSmidth Railcar Air Filters are constructed of high strength aluminum alloy and stainless steel in a formed weather housing.

Filter

The railcar filters feature a replaceable polyurethane catridge of high efficiency and permeability that can be washed and reused. The filter element is mounted on an expanded metal cage within the weather housing. Capable of passing 1350 CFM (38.2 cmm) free air at a pressure drop of only 0.6" (15.2 mm) gauge.







ORDER DATA:

Specify quantity, description and part number.

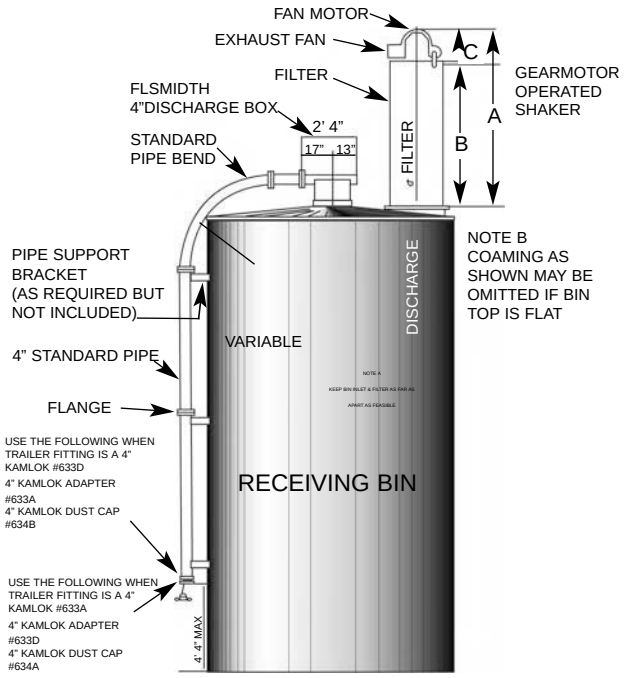
Description	Part No.	Approx. Wt. (lbs.)
A. Air Filter (air inlet) LV-1	101-60-2-1798-00	15
B. Air Filter (loading hatch) HV-2	101-60-2-1791-00	18
C. Filter Replacement Cartridge LV-1	101-60-1-1797-00	3
D. Filter Replacement Cartridge HV-2	101-60-1-1797-00	3

APPLICATION:

As recognized developers and manufacturers of equipment for pneumatic conveying systems, FLSmidth offers standard equipment items for customers who desire to install a simple system to receive materials from pneumatic bulk trailers. The standard accessories include filters, couplers, piping including a standard pipe bend and discharge box. Other standard items related to storage bins and silos are available under other listings in this equipment grouping.

SPECIFICATION:

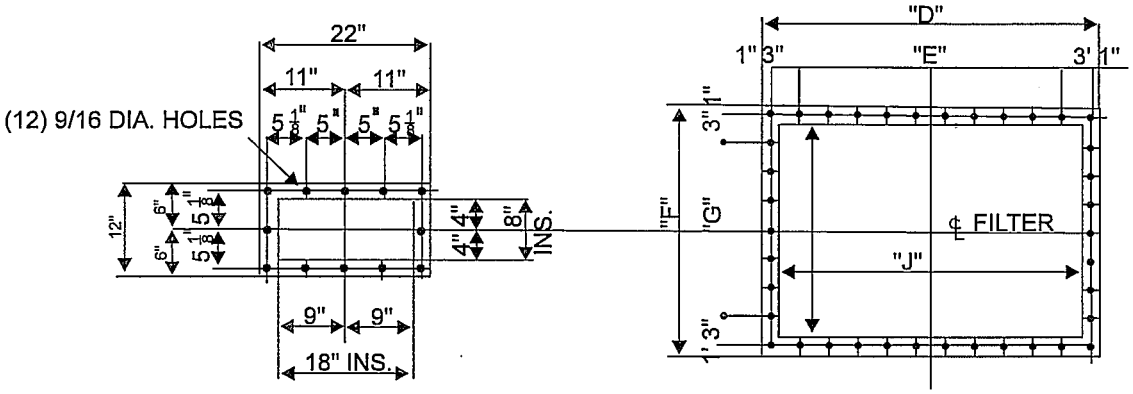
The general arrangement drawing provided illustrates the approximate location and usage of standard equipment items available for pneumatic trailer unloading operations. All items are size for use on 4-inch (100 mm) I.D. pipeline.



ARRANGEMENT WITH FILTER

Filters offered are UNI-FILTER dust collectors which are open-bottom and flanged for easy installation on the roof of storage areas. Normally, these filters are selected on the basis of fan capacity of the collector being approximately **twice** the truck blower capacity. Standard unit sizes 2FM, 3FM and 4FM can satisfy most intermittent filtering requirements. Larger Uni-Filter models are available under the Dust Collection Equipment catalog group. The Watch-dog Timer should be specified for the appropriate voltage to control collector cleaning cycle.

Piping including the standard 4-foot (1.2 m) radium pipe bend is 4-inch (100 mm) diameter Schedule 40 black steel pipe. Straight sections are for use with 4-inch (100 mm) Standard 150# slip on flanges. Specify number and quantity of each item desired Quick disconnect couplings for the silo conveying line should be selected on the basis of the trailer fitting matching male to female or vice versa. Male adapters use a cover. Female adapters use a dust plug.



VIEW "A-A"

BULK UNLOADING ACCESSORIES

FOR BINS AND SILOS

ORDER DATA: Specify quantity, description and part number.

ITEM	DESCRIPTION	PART NO.	APPROX. WEIGHT (lbs.)
FILTERS	UNI-FILTER No. 2FM with 200 sq. ft. polyester cloth 1/3 HP 230/460 V. 3 Ph. 60 Hz. TENV Shaker Gearmotor U-11 Arr. 4 Fan 800 CFM @ 6.00" W.G. bottom horiz. fan motor 2 HP 230/460 V. 3 Ph. 60 Hz. TEFC T-frame. Fan includes discharge damper.	313-69-4-0185-00	910
	UNI-FILTER No. 3FM with 400 sq. ft. polyester cloth 1/3 HP 230/460 V. 3 Ph. 60 Hz. TENV Shaker Gearmotor 110 I.E. arr. 9 Fan 1600 CFM @ 6.9" W.G. bottom horiz. fan motor 3 HP 230/460 V. 3 Ph. 60 Hz. TEFC T-frame. Fan includes discharge damper.	313-71-4-0111-00	1675
	UNI-FILTER No. 4FM with 600 sq. ft. polyester cloth 1/3 HP 230/460 V. 3 Ph. 60 Hz. TENV Shaker Gearmotor 110 I.E. arr. 9 Fan 2400 CFM @ 6.0" W.G. bottom horiz. fan motor 5 HP 230/460 V. 3 Ph. 60 Hz. TEFC T-frame. Fan includes discharge damper.	313-69-4-0205-00	2100
FILTER TIMERS	WATCHDOG TIMER NEMA IV 115 V. 60 Hz. 1 Ph.	315-64-4-0009-02	
	WATCHDOG TIMER NEMA IV 230 V. or 460 V. 60 Hz. 1 Ph. (Specify: 230 or 460 Volts)	315-64-4-0009-08	
DISCHARGE BOX	4" discharge box w/150# plate flange	116-68-3-1606-10	90
PIPING	BEND - 4" STD 4' radius pipe bend w/150# slip on flange.	116-77-4-2533-17	120
	STRAIGHT - 4" Schedule 40 Black Steel Pipe	Specify length	11 lbs./ft.
FLANGE	4" 150# slip on flange		12
QUICK DISCONNECT COUPLINGS	4" (Male) Adapter C.I.	633A	3
	4" (Female) Coupler C.I.	633D	6
	4" Cover A1 w/chain	634B	2
	4" Dust Plug A1 w/chain	634A	1

TABLE OF MOUNTING FLANGE DIMENSIONS FOR BIN DISCHARGE & VERTICAL DIMENSIONS FOR #2, #3 & #4 SIZE FILTERS

	A	B	C	D	E	F	G	H	J	K	FAN MOTOR H.P.	FAN CAPACITY
SIZE #2	8'3-1/8"	6'9-1/2"	1'5-5/8"	2'-8"	6@4" = 2'0"	3'-8"	9@4' = 3'0"	3'-4"	2'-4"	38-9/16"0	2 H.P.	800 C.F.M.
SIZE #3	9'2-3/16"	6'9-1/2"	2'4-11/16"	4'-8"	2@4" = 4'0"	3'-8"	9@4' = 3'0"	3'-4"	4'-4"	50-9/16"0	3 H.P.	1600 C.F.M.
SIZE #4	9'2-3/16"	6'9-1/2"	2'4-11/16"	6'-8"	18@4" = 6'0"	3'-8"	9@4' = 3'0"	3'-4"	6'-4"	62-9/16"0	5 H.P.	2400 C.F.M.

APPLICATION: FLSmidth's Pneu-Boost conveying system offers faster unloading of dry bulk materials from PD railcars and trucks without modification to the vehicles. The Pneu-Boost system increases delivery rates via an external air supply with flow control rather than the delivery vehicle's air supply.

The increased conveying pipe size coupled with a custom designed blower package results in quicker turnaround of vehicles. Fuels costs savings plus less wear and tear on the vehicle makes this an ideal choice for increased unloading efficiency.

Pneu-Boost Conveying Booster

SPECIFICATION:

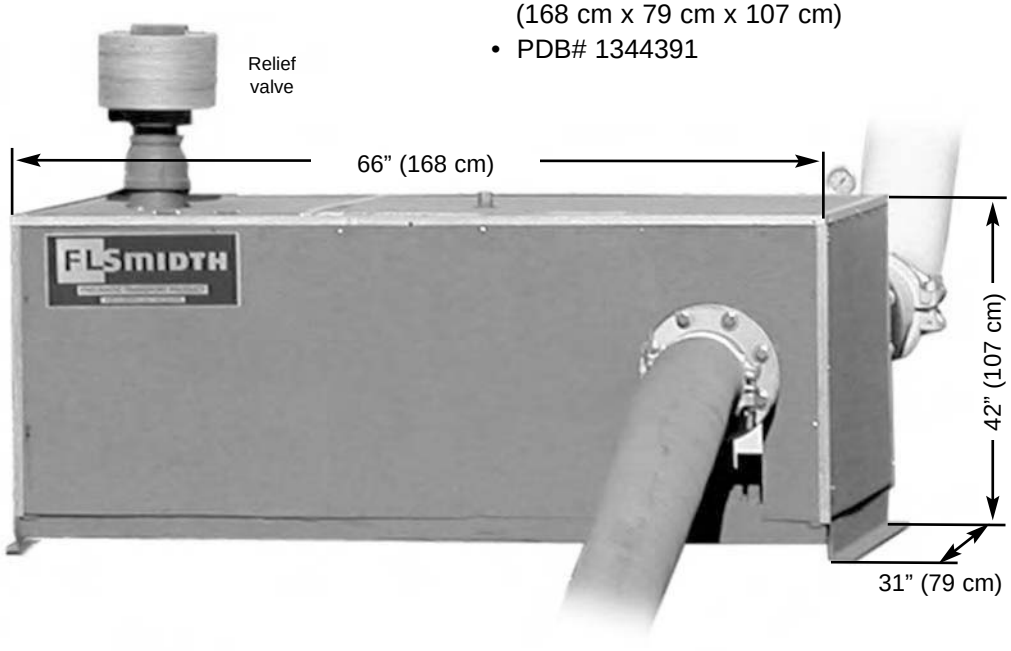
- Overall system sizing analysis by FLSmidth ensures a properly designed system
- Increased rates from delivery vehicles means faster turnaround
- Low weight and compact skid mounted package design provides space saving and mobility
- External air supply (by FLS or Customer) proves fuel savings for delivery vehicle
- Self regulating system essentially eliminates plugged lines
- Completely assembled and ready for use

Accessories

- Nema 4 control system
- Air and conveying hoses
- Pipeline adapters / QD couplings
- Bin vent collectors

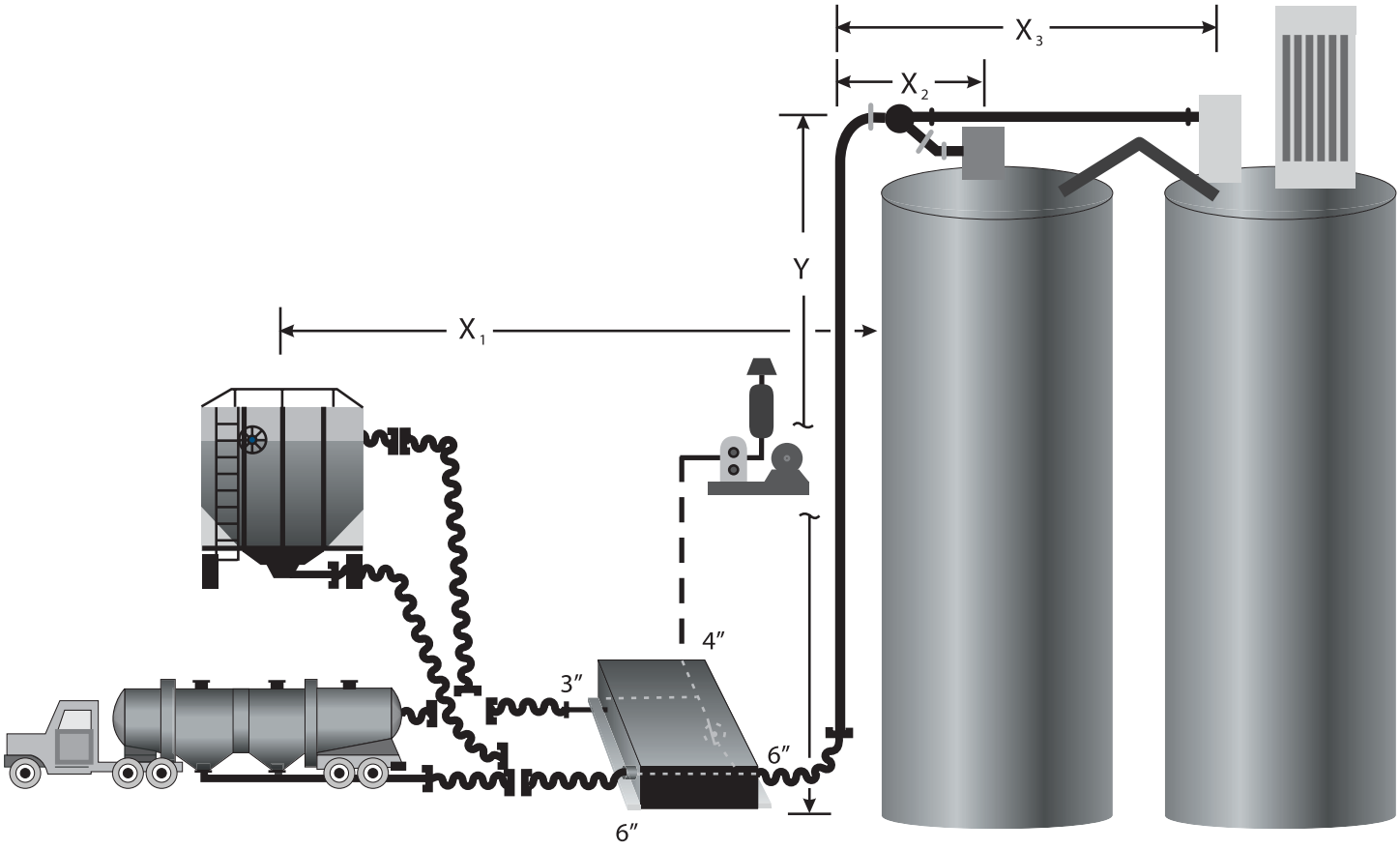
Specifications:

- Carbon steel construction with sch 40 pipe
- 4” (102 mm) flanged inlet air pipe and 3” (76 mm) outlet air pipe to PD vehicle
- 6” (152 mm) internal convey pipe
- Est. weight: 650 lbs. (295 kg)
- Dimensions: 66”l x 31”w x 42”h (168 cm x 79 cm x 107 cm)
- PDB# 1344391



PNEU-BOOST DATA SHEET

Distance:	X = ____ ft, Y = ____ ft
Number of Elbows:	_____
Current Rate:	_____ STPH
Number of Diverters:	_____
Plant Altitude:	_____ FASL
PD Vehicle to Silo:	_____ ft X1
Dust Collector Cloth Area:	_____ Sq. Ft
Is 16 PSIG air available?	_____ Yes / No



FULLOAD™ AUTOMATIC OPERATION MODEL A

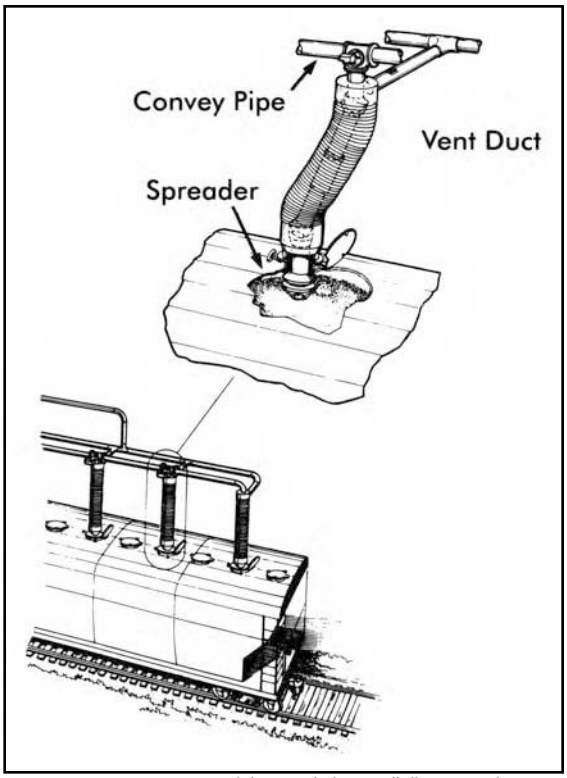
RAILCAR & TRUCK LOADING SYSTEM

APPLICATION:

The FULLOAD railcar system can fill railcar hoppers with:

- Plastic Pellets
- Plastic Powders
- Engineered Resins
- Grains
- Coffee Beans
- Any Pelletized Materials

The FULLOAD system is an automated railcar loading system for pelletized or granular materials. Functioning as an extension of a conventional pneumatic transfer system to distribute material in railcar hoppers, the FULLOAD system eliminates the need for conventional gravity loading systems and mechanical spreaders, while achieving a high percentage of fill. The FULLOAD spreader head consists of two dished surfaces appropriately spaced so the conveying air accelerates the material in a radially outward pattern with a slightly upward velocity. The head itself has no moving parts. In addition, the FULLOAD system is equipped with a full complement of features to enhance the safety of personnel and equipment.



Material spreads in a radially outward pattern with a slightly upward velocity.

FEATURES	BENEFITS
Cost Savings	• Eliminates need for heavy structural support
Automatic Operation	• Labor-saving • No moving or monitoring of equipment required during filling process
Low Profile	• Does not require raising existing storage or loadout silos.
Adjustable Spreading Distance	• Distance and range of product distribution is completely adjustable
Increased Safety for Operating Personnel	• Reduced time in top of railcar • No rotating paddles
Single-Hopper to Multiple-Car Filling	• Wide variety of applications
Automatic Sensing of Filled Condition	• Feeder automatically stops and convey line is purged when railcar is full

FULLOAD™ AUTOMATIC OPERATION MODEL A

RAILCAR & TRUCK LOADING SYSTEM

OPERATION:

Starting Fulload Operation

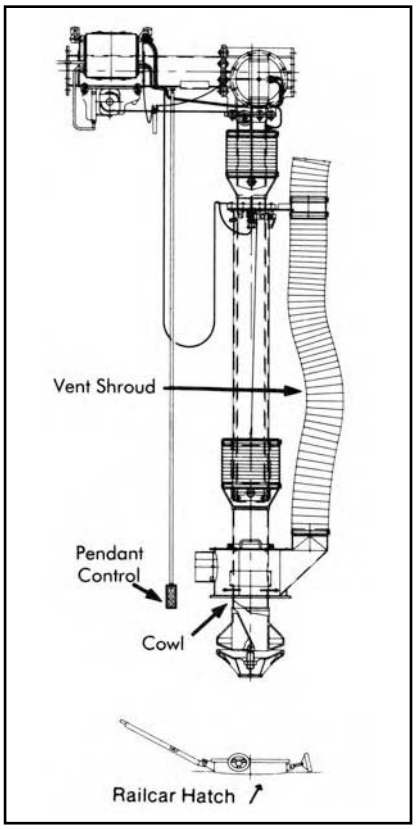
- The operator lowers each selected spreader into the hatch until the vent cowling is properly positioned on the lip of the hatch.
- Pressing the reset switch on the hoist pendant activates the spreader heads.
- The filling process begins by starting the conveying blower and rotary air lock.

Automatic Pressure Sensing

- When the hopper is full, the overhead diverter automatically switches flow to the next activated spreader when this pressure exceeds a preset level.
- The last spreader in a set is the KEY spreader which senses the material level before the head is covered. The rotary airlock is signalled to stop, sensing the filled condition and allowing room in the hopper for the material from the conveying line.
- The blower continues to operated, purging the conveying system.

Cleaning the System

- The operator activates the hoist to raise the spreader several inches.
- The reset button is held and conveying air is diverted to the spreader.
- Any residual material inside the spreader heads is air washed into the hopper.
- The spreader is raised to its stored position.

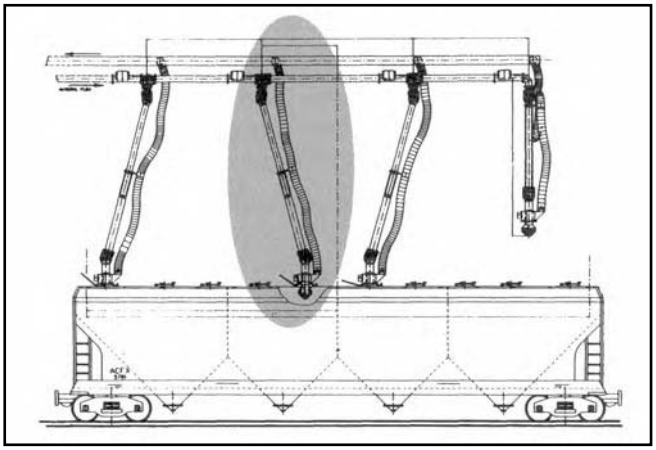


TYPICAL ARRANGEMENT:

4-Spreader arrangement shown here.
(11-Spreader arrangement available.)

Detailed of highlighted section is shown above.

Various vent hood arrangements available.



Drawing for reference only. Subject to change without notice.

LOADING SPOUT (TELESCOPIC)

FOR BULK TRAILER/RAILCAR

APPLICATION:

The FLSmidth telescopic LoadingSpout is designed for discharging relatively dry materials from over-head storage bins to a bulk trailer or railcar. This flexible, retractable spout directs the flow of materials within a restricted area and helps reduce dust or product loss. Discharge from the storage bin may be made through a direct-discharge or controlled rate feeder. An FLSmidth rotary cut-off valve (14" x 14") (350 mm x 350 mm) or similar valve or feeder is recommended. The telescopic loading spout is ruggedly constructed for repeated use.

SPECIFICATION:

General

The FLSmidth Loading Spout uses a solidly constructed inlet neck and thimble with an integral dust vent connection. Three sections of internal telescopic steel pipe are swivel mounted within the thimble. The telescopic tubing is housed within the external 24-inch (610 mm) diameter ribbed spring-flex duct. The discharge flange connection is lined with a rubber gasket to assure positive surface contact on 20-inch (508 mm) diameter hatches.

Movement

Movement is controlled with a motor-operated hoist using wire rope cable. The telescopic spout retracts to a length of 4' 7-11/16" (1422 mm) and extends a distance of 9' 3-11/16" (2845 mm) from the inlet connection. Safety chain is provided to prevent over-extension.

Motor and Hoist

1/2 ton capacity. 1/2 h.p. (.37 kw); single speed, motor 230/460 Volts, 3 phase, 60 Hertz with built-in upper and lower adjustable limit switches and controller.

Support plate and brackets for the hoist arrangement.

ORDER DATA:

Specify quantity, description and part number.

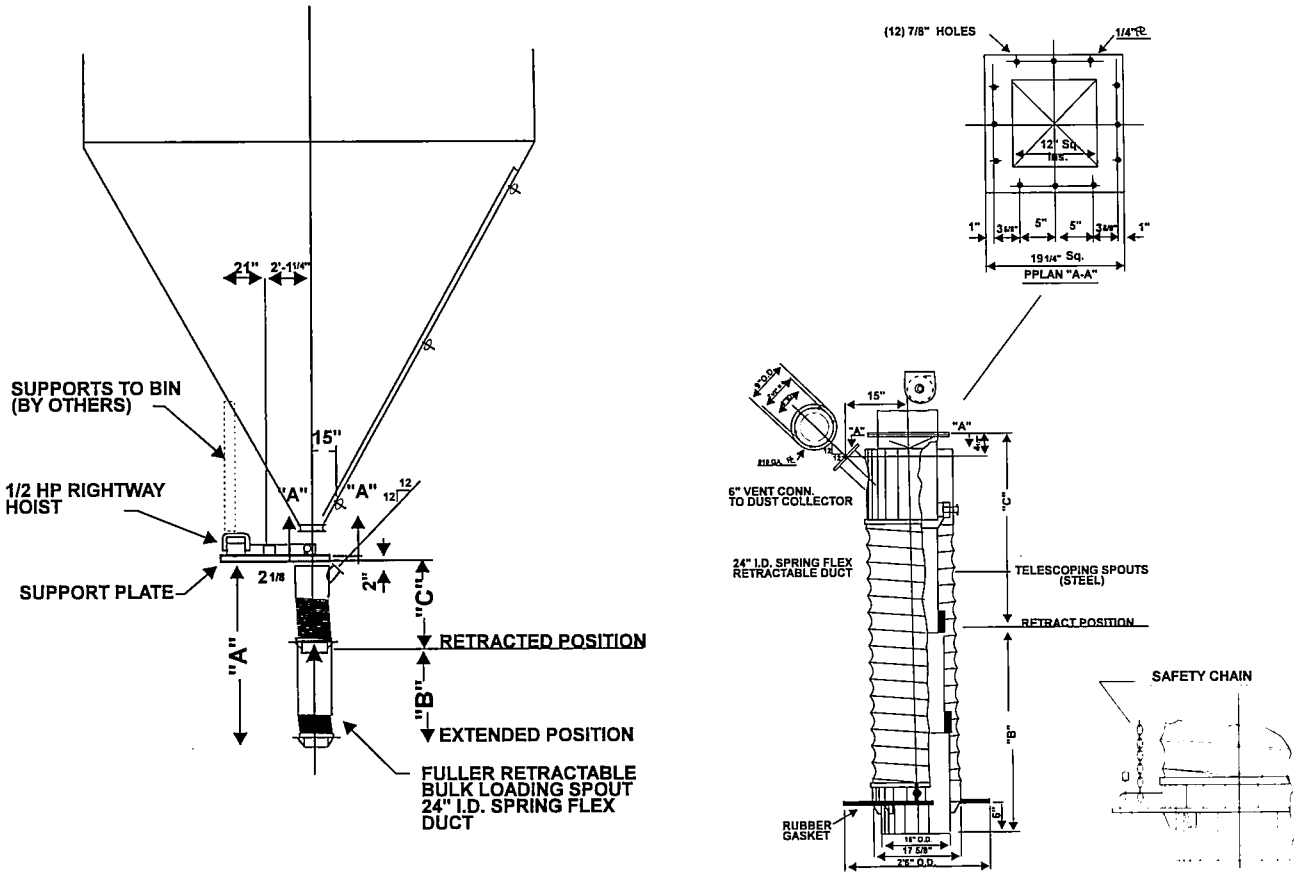
Description	Part No.
FLSmidth telescopic loading spout	108-74-2-0713-00

Other overall lengths from 5'0" (1524 mm) through 26'9" (8153 mm) available. Consult the nearest FLSmidth district office or respresentative.

LOADING SPOUT (TELESCOPIC)

FOR BULK TRAILER/RAILCAR

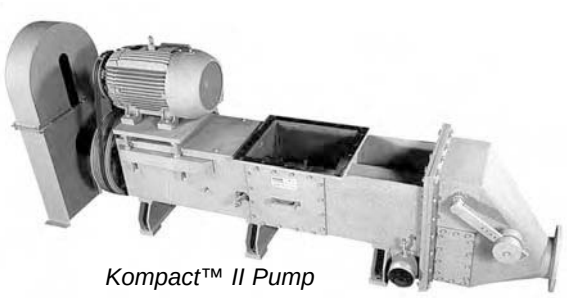
GENERAL ARRANGEMENT



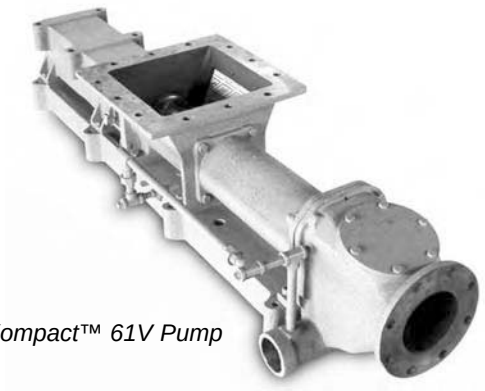
A OVERALL		B MOVEMENT		C RETRACTED	
Inch	mm	Inch	mm	Inch	mm
5’ 0”	1524	2’ 0”	610	3’ 0”	914
6’ 2”	1880	2’ 10”	864	3’ 4”	1016
7’ 0”	2134	3’ 0”	914	4’ 0”	1219
8’ 0”	2438	4’ 0”	1219	4’ 0”	1219
9’ 4”	2845	4’ 8”	1422	4’ 8”	1422
10’ 6”	3200	5’ 0”	1524	5’ 6”	1676
11’ 0”	3353	6’ 0”	1829	5’ 0”	1524
12’ 0”	3658	6’ 0”	1829	6’ 0”	1829
13’ 1”	3988	7’ 6”	2286	5’ 7”	1702
14’ 6”	4420	7’ 6”	2286	7’ 0”	2134
16’ 5”	5004	8’ 0”	2438	8’ 5”	2565
18’ 9”	5715	11’ 0”	3353	7’ 9”	2562
26’ 9”	8153	12’ 0”	3658	14’ 9”	4496

APPLICATION:

Fuller-Kinyon™ Kompact™ pumps are used to pneumatically convey dry pulverized materials such as portland cement, lime stone, bentonite, various ceramic clays and other materials at rates up to 3300 cu.ft./hour (93 m^3/hour). The pumps are ideally suited for intermittent operating applications with a limit of 20 psig conveying line pressure for the Kompact II Pump and 12 psig conveying line pressure for the 61V Kompact Pump. Various mechanical or manual loading and distribution methods can easily be replaced with this totally enclosed, dust-free pneumatic conveying system. Thanks to a low silhouette and short profile, the pump is ideally suited for hopper-bottom car unloading.



Kompact™ II Pump



Kompact™ 61V Pump

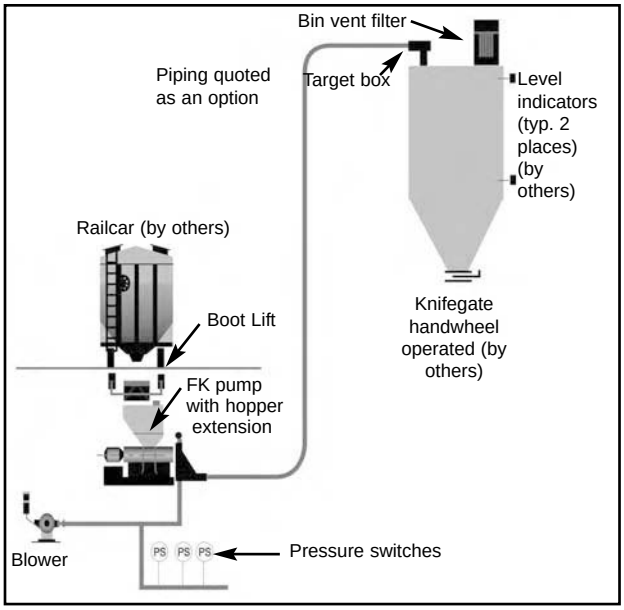
- Pneumatically conveys dry, pulverized materials including portland cement, limestone, bentonite, ceramic clays and more
- Requires only low-pressure, low-velocity air supply to meet large throughput capacity
- Provides low-cost alternative to heavy-duty pumps
- Ideally suited for hopper-bottom car unloading

SPECIFICATION:

Fuller-Kinyon Kompact pumps require only a low-pressure, low-velocity air supply to efficiently meet its large throughput capacity.
Material to be discharged from a hopper bottom rail car enters the pump hopper through a boot lift rail car connection by gravity and is advanced through the barrel by a dynamically balanced impeller screw which is driven through a V-belt drive arrangement with an overhead mounted drive motor.

Typical Material Characteristics

- Must be dry and free-flowing
- 100% passing 50 mesh
- 75% passing 100 mesh
- 60% passing 200 mesh
- 45% passing 325 mesh



As the material advances through the barrel, it is compacted by the decreasing pitch of the screw flights. It is further compacted by by the space between the terminal flight of the screw and the discharge check valve disc to create the material seal. (This seal serves as the air lock to prevent the conveying air from blowing back through the barrel.)

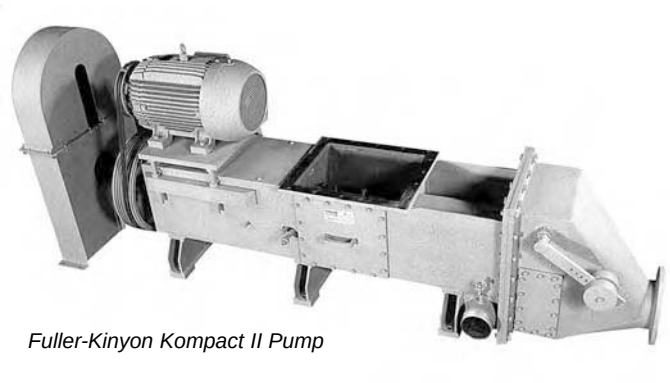
The material then enters the mixing chamber, where it is fluidized by compressed air introduced through air nozzles. From there, the material and air mixture enter the transport pipe.

FULLER-KINYON™ KOMPACT™ II PUMP

APPLICATION:

The Fuller-Kinyon Kompact II pump incorporates the latest design features of the Fuller-Kinyon line of pumps. Its two-piece screw design reduces maintenance and provides greater stability during operation.

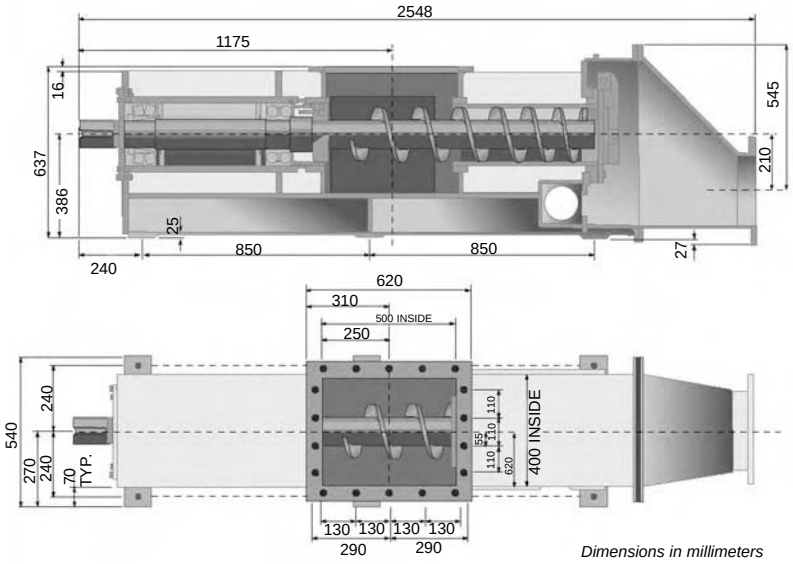
- Newest pump technology
- Totally fabricated steel design
- Capacities up to 3,300 ft^3 /hour
- Reduced pump footprint
- Lighter weight
- Fewer parts
- Low pressure operation
- Ideal for rail car unloading



Fuller-Kinyon Kompact II Pump

SPECIFICATION:

The Fuller-Kinyon Kompact II Pump is steel fabricated, consisting of a hopper leading into a barrel section. Material enters the pump from a bin or hopper-bottom car outlet. The material is advanced into the barrel section by an impeller screw, and is compacted by the decreasing pitch of the screw flights. The material is then fluidized by air introduced from a low-pressure positive displacement blower, and travels throughout the conveying line to the discharge point.



Dimensions in millimeters

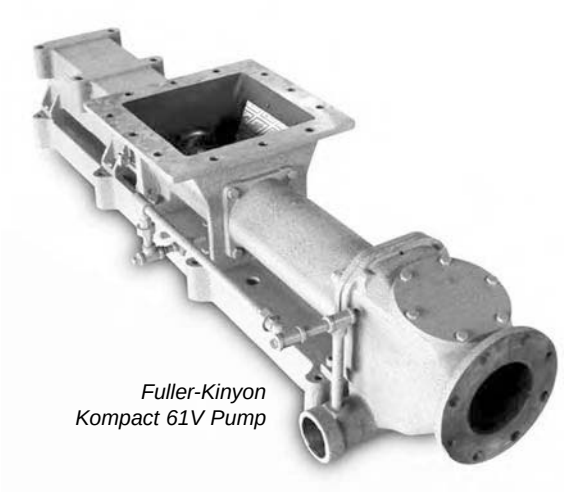
Fuller-Kinyon Kompact II Pump

The Fuller-Kinyon Kompact II Pump provides these benefits while maintaining reliability and quality:

- Increased capacity
- Reduced replacement part cost
- Reduced pump footprint
- Lighter weight, fewer parts

FULLER-KINYON™ KOMPACT™ 61V PUMP

- Proven reliability since 1961
- Heavy-duty cast iron
- Minimum maintenance
- Totally enclosed, dust-free
- Installed directly under hopper bottom railcar
- Cast iron design
- V-belt drive flexibility
- More than 45 years experience
- Capacities up to 1160^3 ft hour
- Suited best for railcar unloading
- Low pressure operation
- Dust-free

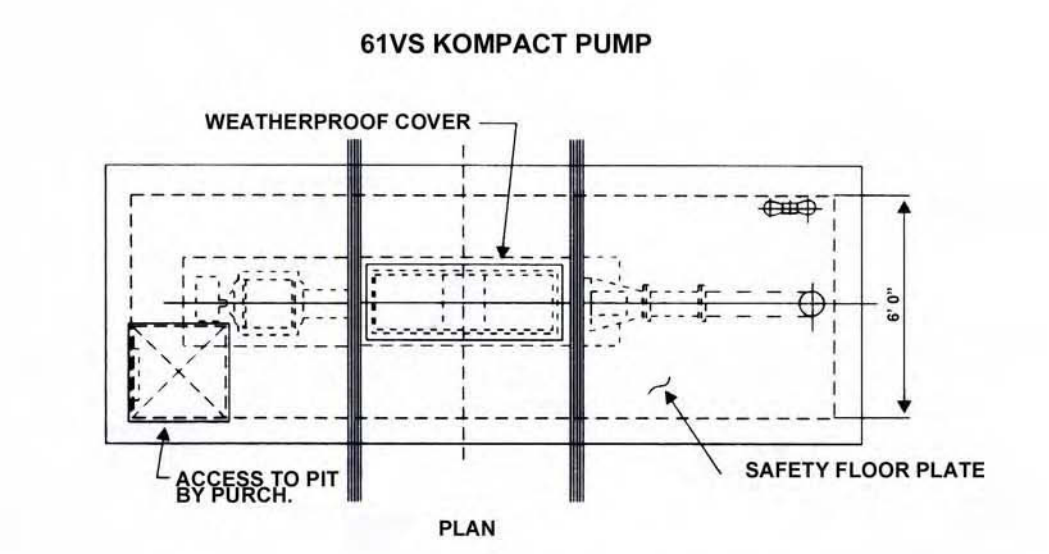


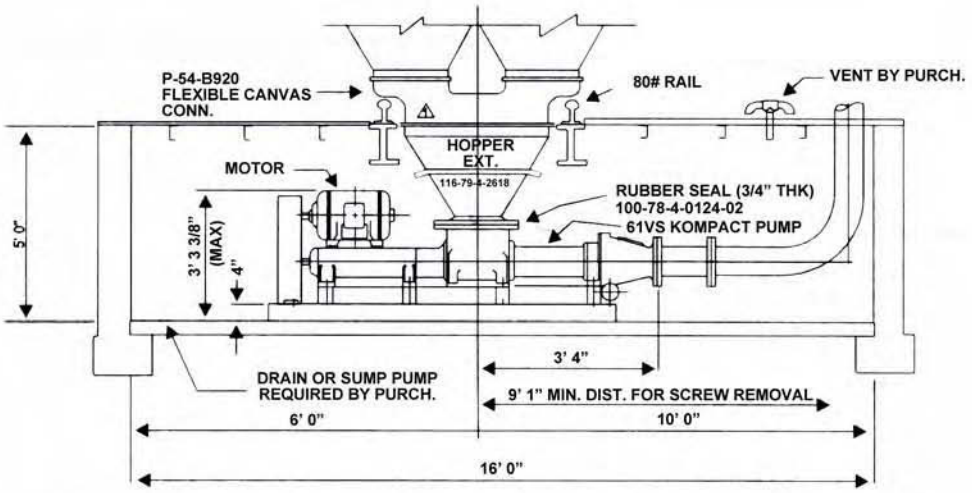
Fuller-Kinyon Kompact 61V Pump

Package No.	Max. Dist. (feet)	Conv. Line (inches)	Cap Tons/Hr.*	Pump Motor HP	Blower Motor HP
MODEL 61V BIN UNLOADING V-BELT DRIVE					
1	125	4”	9	20	25
2	75	4”	18	20	25
3	150	5”	26	20	40
5	125	5”	37	20	30
6S	75	5”	43	20	30
7S	125	5”	43	25	30
8S	125	6”	54	30	60
MODEL 61VL BIN UNLOADING - VERTICAL LIFT, V-BELT DRIVE					
21	40	5”	43	10	15
23S	40	6”	69	15	20
FULLER-KINYON KOMPACT II SPECIFIED BY PROJECT					

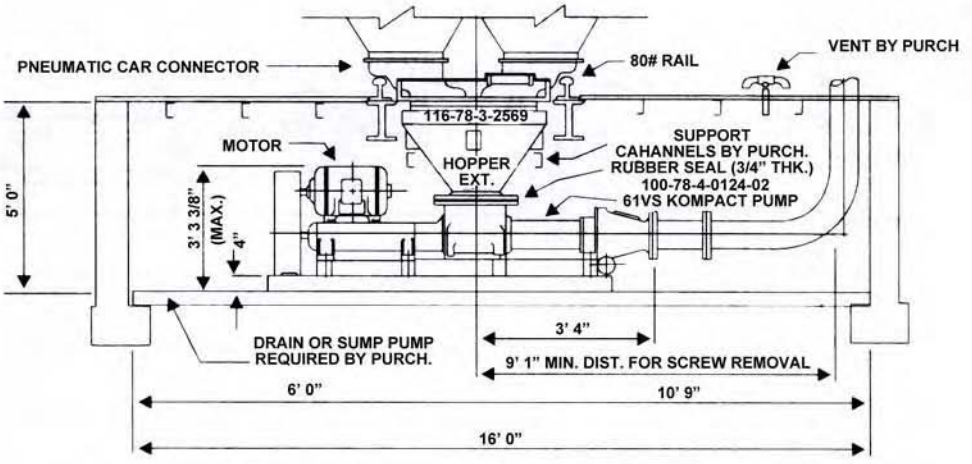
* Charts based on Type I or Type II Portland cement, 3400 Blaine. FLSmidth representative to advise rated capacity when conveying material other than Portland cement.

FOR RAILCAR UNLOADING



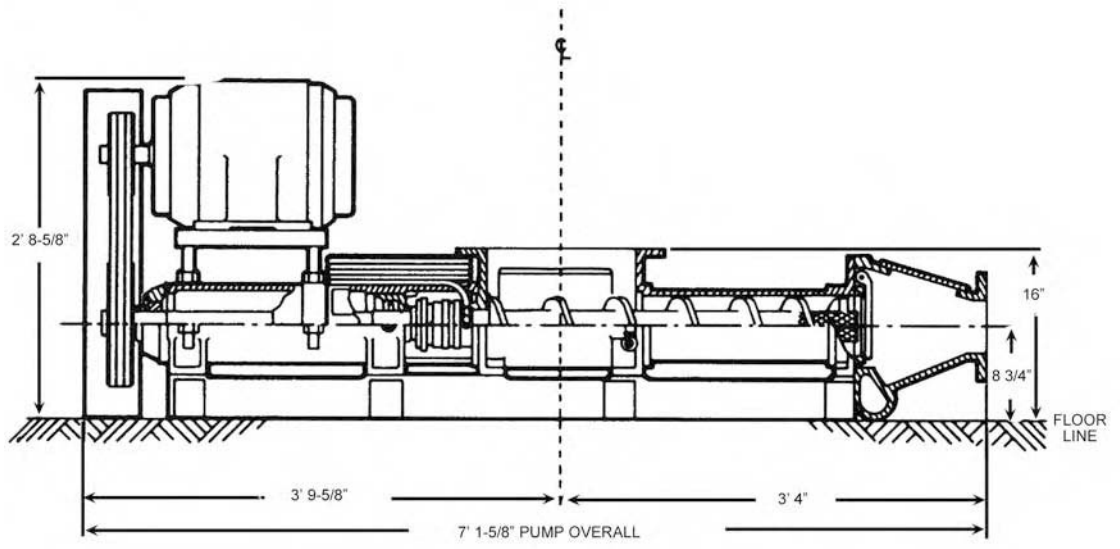


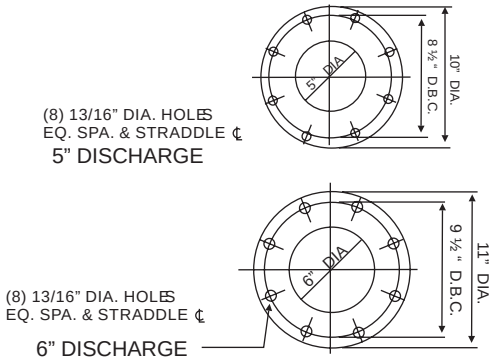
61 VS KOMPACT PUMP WITH FULLER® FLEXIBLE CAR CONNECTOR



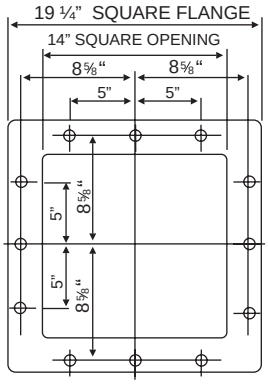
61 VS KOMPACT PUMP WITH PNEUMATIC CAR CONNECTOR

STANDARD DIMENSIONS AND SIZING





DISCHARGE FLANGES



INLET FLANGE (STD.)

NOTES: Model 61V and 61VL Kompact pumps include pump complete with open motor, v-belt drive and guard, non-return valve; and blower complete with open motor, base, relief valve, pressure gauge, filter silencer, and air piping accessory package.

All standard Kompact pumps supplied with straight-away discharge.

* Charts based on Type I or Type II Portland cement, 3400 Blaine. FLSmidth representative to advise rated capacity when conveying material other than Portland cement.

Above applications are for 0 to 2000 ft. (0 to 610 m) elevation. Higher elevations require resizing and special motor pricing.

Special order options available on request.

NOTES:

FEEDERS, VALVES, GATES

INDUSTRY CODES

FEEDERS	
Abrasion Resistant Ceramic Feeder	**C, M, PL, P, S, G**
Metric Series, Open and Closed End Rotor	**C, M, PL, P, S, G**
DA Rotary (Airlock), Open End Rotor	**C, M, P, S, G**
TE Rotary (Airlock), Closed End Rotor	**C, M, P, S, G**
P Rotary (Airlock), Closed End Rotor	**C, M, P, S, G**
Gravity (see Valves, Discharge, Trickle)	**C, M, P, S, G**
Two-Gate (see Valves, Discharge, Two-Gate)	**C, M, P, S, G**
VALVES	
Rotary Metering Flowgate	**C, M, P, S, G**
Airslide Butterfly Flowgate	**C, M, P, S, G**
Discharge, Shrouded Suction Lock	**C, M, P, S, G**
Rotary Cutoff Valve	**C, M, PL, P, S, G**
Discharge, Slide Gate	**C, M, P, S, G**
Discharge, Cut-off Slide Gate	**C, M, P, S, G**
Discharge, Swing Gate	**C, M, P, S, G**
Discharge, Trickle	**C, M, P, S, G**
Discharge, Two-Gate	**C, M, P, S, G**
Conveying Line, One-Way Cutoff-Type SK	**C, M, P, S, G**
Conveying Line, Two-Way Diverter / Converger Type SK	**C, M, P, S, G**
Conveying Line, Two-Way Diverter / Converger Type SK w/Replaceable Seat	**C, M, P, S, G**
Diverter / Converger Valves, Type FA, 90°, 45°	**C, M, PL, P, S, G**
Two-Way Gravity Diverter Gate	**C, M, P, S, G**
Butterfly Valves	**C, M, P, S, G**
Vacuum Inlet Connector	**C, M, P, S, G**
Material Feed Valve	**C, M, P, S, G**

INDUSTRY CODES

C = CEMENT
M = MINERALS
PL = PLASTICS
P = POWER
S = STEEL
G = GENERAL

FEEDER/AIRLOCK APPLICATION INFORMATION

Which function below best describes the purpose of the valve in your system?

- ❑ **AIRLOCK** — **Unit does not control flow of material. Acts as air seal only.**
- ❑ **FEEDER** — **Unit controls flow of material. No significant pressure differential.**
- ❑ **FEEDER/AIRLOCK** — **Units act as air seal and controls the flow of material.**

What is ABOVE Rotary Valve?

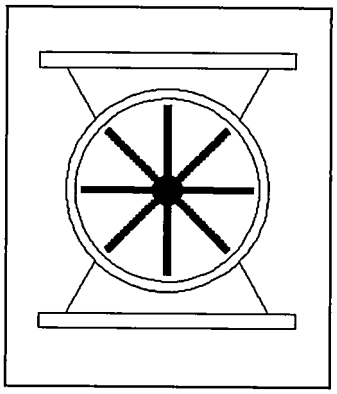
❑ **Hopper** ❑ **Silo** ❑ **Baghouse** ❑ **Cyclone** ❑ **Filter Receiver.**
❑ **Screw**
❑ **Shredder** ❑ **Dryer** ❑ **Mixer** ❑ **Other:** _____

Pressure Above Valve is:

❑ **Positive** ❑ **Negative** ❑ **Atmospheric**
_____**PSI** _____**"HG** _____**" H_2O**

Temperature above valve is: _____ **° F.**

Is there a "Head" of Material? ❑ **Yes** ❑ **No**



What is BELOW Rotary Valve?

❑ **Hopper** ❑ **Screw** ❑ **Airslide®** ❑ **Belt** ❑ **Chute** ❑ **Mixer**
❑ **Tank** ❑ **Vac. Line** ❑ **Pres. Line** ❑ **Other:** _____

Pressure Beneath Valve is:

❑ **Positive** ❑ **Negative** ❑ **Atmospheric**
_____**PSI** _____**"HG** _____**" H_2O**

Temperature beneath valve is: _____ **° F.**

Mechanical Characteristics

Common Name: _____ **Chemical Formula:** _____
Bulk Density, Aerated: _____ **LBS./CU.FT.**
Bulk Density, Settled: _____ **LBS./CU.FT.**
Maximum Particle Size: _____

Particle Type/Shape is:

❑ **Pellet** ❑ **Powder** ❑ **Chip** ❑ **Lump** ❑ **Granular**
❑ **Flake** ❑ **Curl** ❑ **Fibrous** ❑ **Other:** _____

Special Characteristics

❑ **Hygroscopic** ❑ **Corrosive-Reactive** ❑ **Explosive** ❑ **Sticky-Smears** ❑ **Toxic-Emits Fumes**
❑ **Heat Sensitive** ❑ **Aerates-Dusty** ❑ **Tends To Pack** ❑ **Other:** _____

Abrasiveness:

❑ **Extreme** ❑ **Moderate** ❑ **Mild**
Is Sample Available? _____

Flow Rate:

Maximum Rate of Flow Per Hour: _____ **S-TONS** _____ **LBS.** _____ **BSHLS.**

If Variable Feed Rate Required? ❑ **Yes** ❑ **No**

Max. Rate: _____ **Min. Rate:** _____

Duty Cycle: ❑ **Continuous** ❑ **Intermittent**

Location: ❑ **In-Plant** ❑ **Outdoors** ❑ **Portable**

Electrical: _____**PH** _____**Hz** _____**VOLTS** ❑ **TEFC** ❑ **EXPL. PRF.**

Please copy this form and fax it to our sales office at 610-264-6735, and we will provide an estimate promptly.

SIZING ROTARY FEEDERS/AIRLOCKS

A. Gather the facts

B. Understand what the customer wants to do

C. Sketch the system

D. Data required: (See work sheet)
   1. Material - Characteristics, particle size, abrasive, etc.,
   2. Density - LB/F^3
   3. Capacity - TPH, LB/MIN, etc.
   4. △ Pressure
   5. Temperature
   6. Power - PH, HZ, Volt

E. Determine flow rate in CU. FT. Min.

F. Per the application, decide fill efficiency
   85% for feeders, "O"△P
   67% for airlocks

G. Refer to capacity charts for feeder selection, list choices

H. Select feeder per sell price, RPM, availability

ROTARY AIR LOCK FEEDER CAPACITIES

FT^3/min @ 85% EFFICIENCY Formula Cap. = DISP (VE) (SPD)
CFM = CFR (%) (RPM)

TE FEEDERS		RPM				
Feeder Size	**FT^3 Displ.**	**10**	**13**	**17**	**20**	**24**
2” TE (O.E.)	0.014	0.12	0.15	0.20	0.24	0.29
5” TE (O.E.)	0.18	1.53	1.99	2.60	3.06	3.67
6” TE (O.E.)	0.26	2.21	2.87	3.76	4.42	5.30
8” TE (O.E.)	0.57	4.85	6.30	8.24	9.69	11.63
10” TE (O.E.)	1.26	10.71	13.92	18.21	21.42	25.70
12” TE (O.E.)	2.30	19.55	25.42	33.24	39.10	46.92
16” TE (O.E.)	3.50	29.75	38.68	50.57	59.50	71.40
7-3/4” x 10” TE (O.E.)	0.15	1.28	1.66	2.17	2.55	3.06
8” x 10” TE (O.E.)	0.30	2.55	3.32	4.34	5.10	6.12
10” x 11-1/2” TE (O.E.)	1.00	8.50	11.05	14.45	17.00	20.40
12” x 13” TE (O.E.)	1.80	15.30	19.89	26.01	30.60	36.72
12” x 20” TE (O.E.)	2.75	23.38	30.39	39.74	46.75	56.10
16” x 16” TE (O.E.)	3.33	28.31	36.80	48.12	56.61	67.93
16” x 27” TE (O.E.)	5.23	44.46	57.79	75.57	88.91	106.69
16” x 27” (C.E.)	4.71	40.04	52.05	68.06	80.07	96.08

DA FEEDERS		RPM				
Feeder Size	**FT^3 Displ.**	**10**	**13**	**17**	**20**	**24**
DA50 (C.E.)	0.50	4.25	5.52	7.23	8.50	10.20
DA100 (C.E.)	1.00	8.50	11.05	14.45	17.00	20.40
DA160 (C.E.)	1.60	13.60	17.68	23.12	27.20	32.64

SHROUDED FEEDERS						
Feeder Size	FT^3 Displ.	RPM				
		10	13	17	20	24
8” S (C.E.)	0.15	1.28	1.66	2.17	2.55	3.06
10” S (C.E.)	0.39	3.32	4.31	5.64	6.63	7.96
10” x 18” S (C.E.)	0.64	5.44	7.07	9.25	10.88	13.06
15” S (C.E.)	1.33	11.31	14.70	19.22	22.61	27.13

METRIC FEEDER						
Feeder Size	FT^3 Displ.	RPM				
		10	13	17	20	24
150 (O.E.)	0.64	5.44	7.07	9.25	10.88	13.06
150 (C.E.)	0.56	4.76	6.19	8.09	9.52	11.42
300 (O.E.)	1.24	10.54	13.70	17.92	21.08	25.30
300 (C.E.)	1.08	9.18	11.93	15.61	18.36	22.03
700 (O.E.)	2.86	24.31	31.60	41.33	48.62	58.34
700 (C.E.)	2.58	21.93	28.51	37.28	43.86	52.63
2500 (O.E.)	10.09	85.77	111.49	145.80	171.53	205.84
2500 (C.E.)	9.14	77.69	101.00	132.07	155.38	186.46

ROTARY AIR LOCK FEEDER CAPACITIES

FT^3/min @ 67% EFFICIENCY Formula Cap. = DISP (VE) (SPD)
CFM = CFR (%) (RPM)

TE FEEDERS		RPM				
Feeder Size	**FT^3 Displ.**	**10**	**13**	**17**	**20**	**24**
2” TE (O.E.)	0.014	0.09	0.12	0.16	0.19	0.23
5” TE (O.E.)	0.18	1.20	1.60	2.10	2.40	2.90
6” TE (O.E.)	0.26	1.70	2.30	3.00	3.50	4.20
8” TE (O.E.)	0.57	3.80	5.00	6.50	7.60	9.20
10” TE (O.E.)	1.26	8.40	11.00	14.40	16.90	20.30
12” TE (O.E.)	2.30	15.40	20.00	26.20	30.80	37.00
16” TE (O.E.)	3.50	23.50	30.50	39.90	46.90	56.30
7-3/4” x 10” TE (O.E.)	0.15	1.00	1.30	1.70	2.00	2.40
8” x 10” TE (O.E.)	0.30	2.00	2.60	3.40	4.00	4.80
10” x 11-1/2” TE (O.E.)	1.00	6.70	8.70	11.40	13.40	16.10
12” x 13” TE (O.E.)	1.80	12.10	15.70	20.50	24.10	28.90
12” x 20” TE (O.E.)	2.75	18.40	24.00	31.30	36.90	44.20
16” x 16” TE (O.E.)	3.33	22.30	29.00	37.90	44.60	53.50
16” x 27” TE (O.E.)	5.23	35.00	45.60	59.60	70.10	84.10
16” x 27” (C.E.)	4.71	31.60	41.00	53.60	63.10	75.70

DA FEEDERS		RPM				
Feeder Size	**FT^3 Displ.**	**10**	**13**	**17**	**20**	**24**
DA50 (C.E.)	0.50	3.40	4.40	5.70	6.70	8.00
DA100 (C.E.)	1.00	6.70	8.70	11.40	13.40	16.10
DA160 (C.E.)	1.60	10.70	13.90	18.20	21.40	25.70

SHROUDED FEEDERS		RPM				
Feeder Size	FT^3 Displ.	10	13	17	20	24
8” S (C.E.)	0.15	1.00	1.30	1.70	2.00	2.40
10” S (C.E.)	0.39	2.60	3.40	4.40	5.20	6.30
10” x 18” S (C.E.)	0.64	4.30	5.60	7.30	8.60	10.30
15” S (C.E.)	1.33	8.90	11.60	15.10	17.80	21.40

METRIC FEEDER		RPM				
Feeder Size	FT^3 Displ.	10	13	17	20	24
150 (O.E.)	0.64	4.30	5.60	7.30	8.60	10.30
150 (C.E.)	0.56	3.80	4.90	6.40	7.50	9.00
300 (O.E.)	1.24	8.30	10.80	14.10	16.60	19.90
300 (C.E.)	1.08	7.20	9.40	12.30	14.50	17.40
700 (O.E.)	2.86	19.20	24.90	32.60	38.30	46.00
700 (C.E.)	2.58	17.30	22.50	29.40	34.60	41.50
2500 (O.E.)	10.09	67.60	87.90	114.90	135.20	162.20
2500 (C.E.)	9.14	61.20	79.60	104.10	122.50	147.00

SELECTION GUIDE

TYPE	TYPICAL APPLICATIONS	RATE (CFM)*	
		FROM	TO
FEEDERS			
METRIC SERIES	Pressure or vacuum conveying systems	5.4	162.0
“DA” ROTARY	Pressure pneumatic conveying systems	4.7	39.3
“TE” ROTARY (Open End Rotor)	Pressure or vacuum pneumatic conveying systems	1.5	115.0
“P” ROTARY (Closed End Rotor)	Pressure or vacuum pneumatic conveying systems	1.2	32.7
VALVES			
SHROUDED SUCTION LOCK (Rotary)	Dust collection equipment	2.4	23.2
ROTARY CUT-OFF	Gravity discharge under silos or bins	direct discharge	
SLIDE GATE (Manual)	Dust collection equipment, gravity discharge	direct discharge	
CUT-OFF GATE (Enclosed Slide Type)	Gravity discharge under silos or bins	direct discharge	
SWING GATE	Dust collection equipment	direct discharge	
TRICKLE	Dust collection equipment	variable rate	
TWO-GATE	Dust collection equipment	5.0	33.0
ONE-WAY CUT-OFF TYPE SK	Pressure tank valves, conveying line cut-off		
DIVERTER or CONVERGER TYPE SK	Pressure pneumatic conveying systems		
DIVERTER or CONVERGER TYPE FA	Pressure or vacuum pneumatic conveying systems		

NOTES: *Minimum - maximums based on 100% efficiency. Conservative estimates of 85% for feeder operation and 67% for airlock operation are normally used for planning purposes.

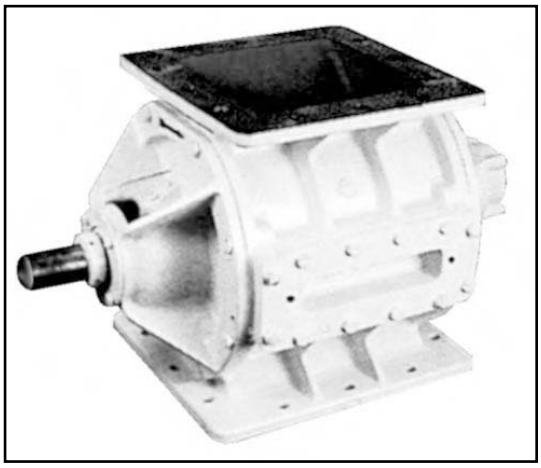
Consult your nearest FLSmidth District Office, representative or call Bethlehem direct for special applications.

ABRASION RESISTANT CERAMIC FEEDER

APPLICATION:

Lined with thick ceramic coating designed to resist the most abrasive materials, the Abrasion Resistant Ceramic Feeder from FLSmidth offers heavy-duty design and contruction and proven performance.

- Exceptional abrasion resistance
- Prompt shipment
- Replacements and new installations
- Better performance
- Longer life

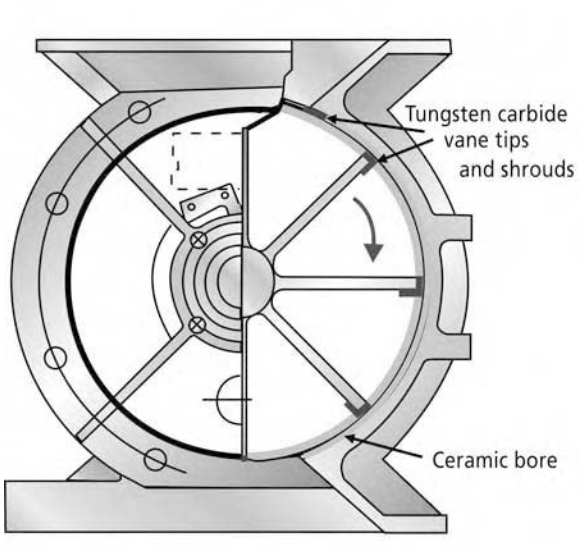


COMPARISON: FLSMIDTH VS STANDARD CONSTRUCTION

ITEM	STANDARD CONSTRUCTION	FLSMIDTH'S CERAMIC DESIGN
Housing	Cast iron (230 - 250 bhn)	Cast iron with .100" (2.54 mm) thick alumina ceramic tile bore and .100" (2.54mm) thick tungsten carbide around the throat in the bore
End plates	Cast iron (230 - 250 bhn)	Cast iron (230 - 250 bhn)
Rotor	Carbon steel, 8-vane, closed end	Carbon steel, 8-vane, closed end with .100" (2.54mm) thick tunsten carbide L-shaped tile on rotor vane O.D. and shrouds
Balance	Outboard sealed bearings, packing type shaft seals, air purge connections	Outboard sealed bearings, packing type shaft seals, air purge connections

SPECIFICATIONS:

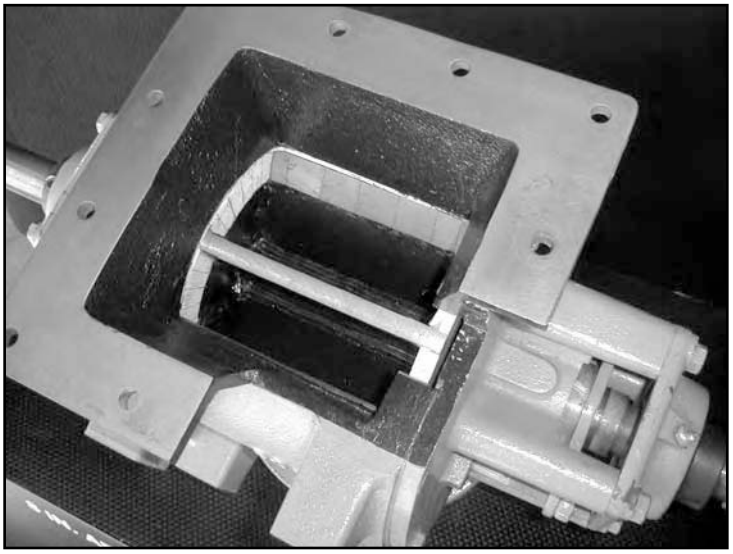
- Cast body and end plate
- 0.100" (2.54mm) thick ceramic bore
- Tungsten carbide throat protection
- Heavy-duty fabricated 8-vane rotor
- Tungsten carbide rotor vane and shroud tips, 0.100" (2.54mm) thick
- Air purge seal connections
- Air gap between seals and bearings
- Outboard sealed ball bearings
- Maximum operating temperature: 350°F (175°C)



ABRASION RESISTANT CERAMIC FEEDER

VALUE ADDED BENEFITS

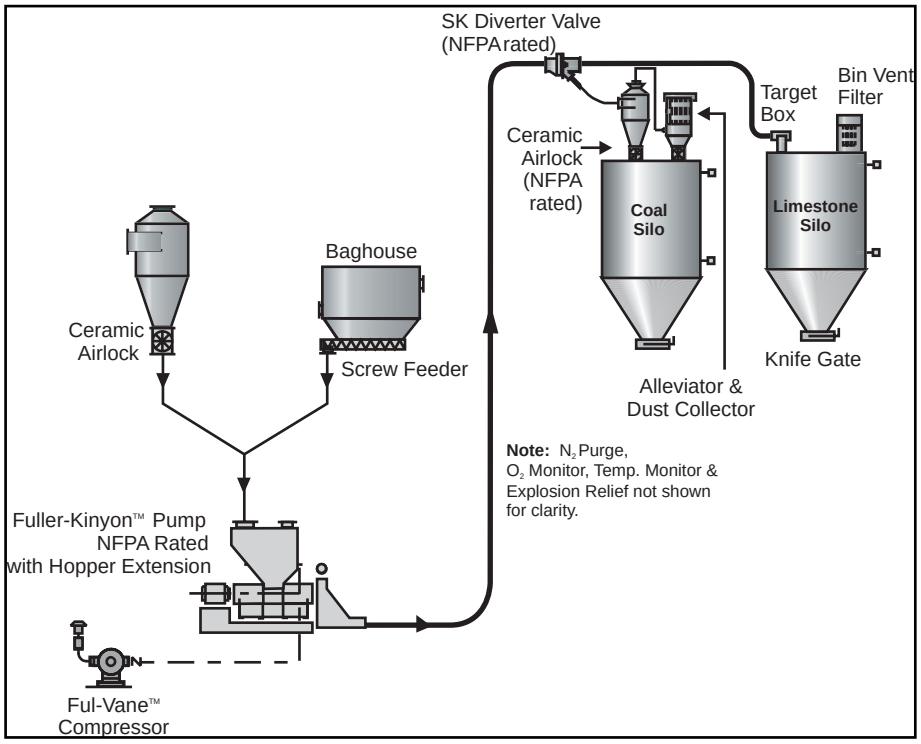
- Reduced life cycle costs
- Increased running time / reduced downtime
- Three to four times longer life than compared to other designs



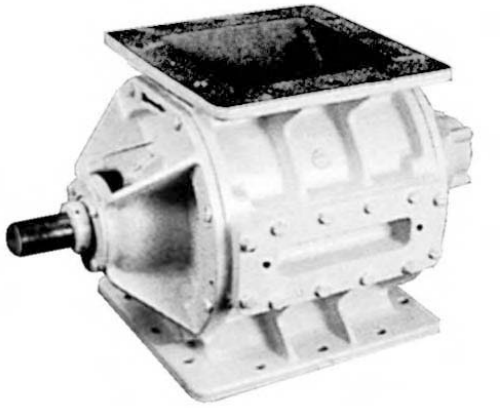
SIZE	DISPLACEMENT
8”	0.15 cu. ft./rev.
10”	0.39 cu. ft./rev.
150mm	0.55 cu. ft./rev.
300mm	1.09 cu. ft./rev.
700mm	2.60 cu. ft./rev.
2500mm	9.08 cu. ft./rev.
16” x 27”	4.7 cu. ft./rev.

TYPICAL APPLICATION

- Airlock application
- Rotary feeder application
- Explosion isolation locks
- Vacuum or pressure



APPLICATION: FLSmidth's Metric Series Feeders/Airlocks combine many essential features in a single unit. The feeder helps to maximize the performance and dependability of a pneumatic conveying system. The Metric Series is available in several types of construction, Series 1 through 7, and is able to handle materials in either vacuum or pressure conveying systems.



SPECIFICATION:

Body
The Metric feeder is ruggedly constructed to maintain roundness. It can be furnished with either a closed or open end rotor. The throat inlet is angled to induce a shearing action for smoother operation. An optional port is available and extends the full length of the body. It may be used as an inspection panel and clean-out port. The inlet flange easily adapts to a square or a standard 125 Ib. ASA flange on Models 150, 300, 700.

Rotor
Two basic designs are available - open or closed end. All rotors have eight (8) vanes with a minimum of four (4) vanes sealing at all times to minimize leakage. Rotors can be furnished with beveled blades and hard-coated tips as required.

End Plates
Designed to assure efficient sealing of the shaft with two (2) lip seals and two (2) lantern rings or three (3) rows of packing and one (1) lantern ring per end plate. Pipe taps are provided for the air purge and lubrication of the lip seals. Standard design includes lantern rings, lip seals and outboard sealed bearings.

Motor Mounting
Motor support lugs are cast as an integral part of the feeder body to permit the mounting of a gearmotor directly on the unit, resulting in a compact package requiring minimum space.

Motor Drive
All integral horsepower gearmotors are TEFC, 1.15 Service Factor, Class "F" insulation and corrosion-resistant. All standard gearmotors are 230/460 volts, three (3) phase, 60 Hz. Standard drives are roller chain with OSHA approved guards. Oil bath guards are also available.
NOTE: All standard Feeders (Airlocks) are designed to handle material in conveying systems that operate up to a maximum pressure differential of 5 PSIG (1.05 Kg/cm^2).

SPECIAL DESIGN & SPECIFICATIONS:

a) Abrasion-resistant Airlocks (Type AR)
Type of Construction - Series 5
Abrasion-resistant airlocks are designed for use in a vacuum or pressure pneumatic conveying system. Typical applications are on filter receivers, dust collectors, cyclones and pneumatic conveying systems handling abrasive materials. Pressure differentials to 15 PSIG (1.05 Kg/cm^2).

b) NFPA-85F Design for Fuel Firing Feeders / Airlocks
Type of Construction - Series 6,7
All units will conform to the above standards and will have the following minimum features:
1. Hydrostatic testing will be at 50 PSIG (3.5 Kg/cm^2). The maximum operating pressure differential will be 2 PSIG (0.14 Kg/cm^2).
2. All tips of rotor vane are beveled.
3. All feeder/airlocks have specific flange and end plate drillings, which prevents replacement with a standard unit.

c) Other special designs are available: reduced-capacity rotors, zero-speed switch devices (impulse and proximity), feeder baffle plates, and high temperature designs to 700F° (371 C°).

METRIC SERIES TYPES OF CONSTRUCTION

SERIES 1: CAST IRON

Series 1	Body*	End Plates	Rotor*
Size 150	C.I.	C.I.	F.c.s.
Size 300	C.I.	C.I.	F.c.s.
Size 700	C.I.	C.I.	F.c.s.
Size 2500	C.I.	C.I.	F.c.s.

Cast iron with lip seals or packing, open end and shrouded rotors

Material of construction
Body: Cast Iron, class 50
End Plates: Cast Iron, class 50
Rotor: Carbon steel blades and shaft, ASTM A283 Gr. D, C1018 steel

SERIES 2: STAINLESS STEEL

Series 2	Body*	End Plates	Rotor*
Size 150	S.S.	S.S.	F.s.s.
Size 300	S.S.	S.S.	F.s.s.
Size 700	S.S.	S.S.	F.s.s.
Size 2500	S.S.	S.S.	F.s.s.

S.S. with lip seals or packing, open end and shrouded rotors

Material of construction
Body: 304 S.S.
End Plates: 304 S.S.
Rotor & shaft: 304 S.S. (fabricated)

SERIES 3: ALUMINUM AND STAINLESS STEEL

Series 3	Body*	End Plates	Rotor*
Size 150	Al.	Al.	F.s.s.
Size 300	Al.	Al.	F.s.s.
Size 700	Al.	Al.	F.s.s.
Size 2500	Al.	Al.	F.s.s.

Aluminum body and end plates with lip seals or packing, open end and shrouded rotors

Material of construction
Body: Cast aluminum SR. 319. OT 51
End Plates: Cast aluminum SR. 319. OT 51
Rotor & shaft: 304 S.S. (fabricated)

SERIES 4: STAINLESS STEEL AND ALUMINUM

Series 4	Body*	End Plates	Rotor*
Size 150	S.S.	Al.	F.s.s.
Size 300	S.S.	Al.	F.s.s.
Size 700	S.S.	Al.	F.s.s.
Size 2500	S.S.	Al.	F.s.s.

S.S. body, aluminum end plates with lip seals or packing, open end and shrouded rotors

Material of construction
Body: 304 S.S.
End Plates: Cast aluminum SR. 319. OT 51
Rotor: 304 S.S. (fabricated)

SERIES 5: COMBINATION IRON

Series 5	Body*	End Plates	Rotor*
Size 150	D.I.	C.I.	F.c.h.s.
Size 300	D.I.	C.I.	F.c.h.s.
Size 700	D.I.	C.I.	F.c.h.s.
Size 2500	D.I.	C.I.	F.c.h.s.

D.I. body, C.I. end plate with lip seals or packing, with hard surfaced, shrouded rotors

Material of construction
Body: D.I. 120-90-02 ASTM A536
End Plates: Cast Iron, Class 50
Rotor: Carbon steel blades, ASTM A283 Gr. D. with No. 6 Colmonoy hard surfacing (56 to 60 RC)

SERIES 6: CAST IRON, NFPA 85F STANDARD **

Series 6	Body*	End Plates	Rotor*
Size 150	C.I.	C.I.	F.c.s.
Size 300	C.I.	C.I.	F.c.s.
Size 700	C.I.	C.I.	F.c.s.
Size 2500	C.I.	C.I.	F.c.s.

C.I. body, C.I. end plate with lip seals or packing, open end and shrouded rotors, special body drilling

Material of construction
Body: Cast Iron, class 50
End Plates: Cast Iron, class 50
Rotor: Carbon steel blades and shaft, ASTM A283 Gr. D, C1018 steel

SERIES 7: COMBINATION IRON, NFPA 85F STANDARD **

Series 7	Body*	End Plates	Rotor*
Size 150	D.I.	C.I.	F.c.h.s.
Size 300	D.I.	C.I.	F.c.h.s.
Size 700	D.I.	C.I.	F.c.h.s.
Size 2500	D.I.	C.I.	F.c.h.s.

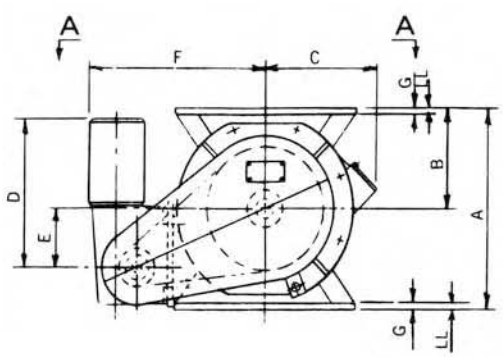
D.I. body, C.I. end plates, with lip seals or packing, hard surfaced, shrouded rotors, special body drilling

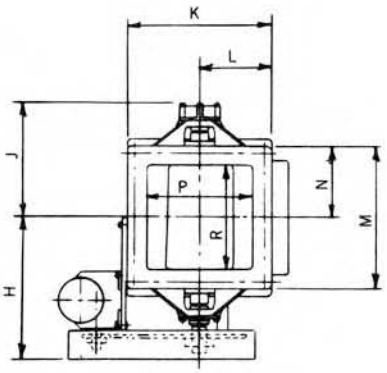
Material of construction
Body: D.I. 120-90-02 ASTM A536
End Plates: Cast Iron, class 50
Rotor: Carbon steel blades, ASTM A283 Gr. D, with No. 6 Colmonoy hard surfacing (56 to 60 RC)

LEGEND

*C.I. - Cast Iron
F.c.s. - Fabricated carbon steel
S.S. - Stainless steel
F.s.s. - Fabricated stainless steel
Al. - Aluminum
F.c.h.s. - Fabricated carbon steel, hard surfaced
D.I. - Ductile iron

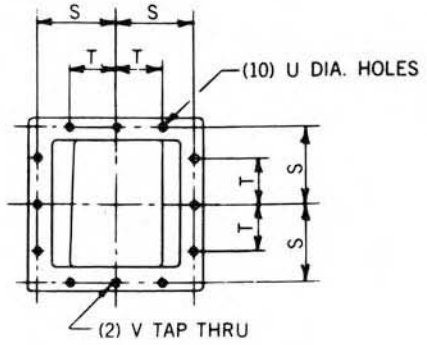
Consult CHQ for appropriate part numbers
** Series 6 & 7 conform to the NFPA-85F Standards



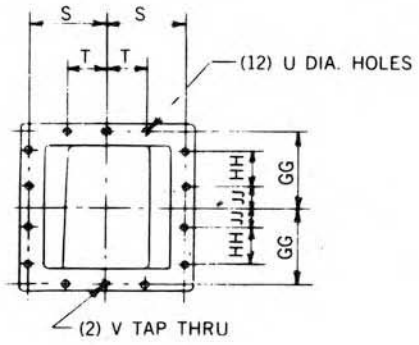


VIEW A-A

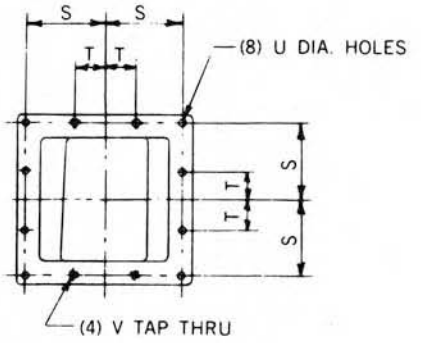
OPEN OR CLOSED END ROTOR



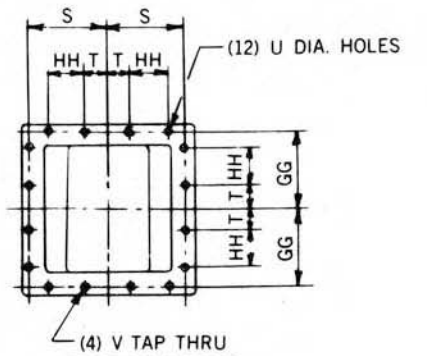
TOP FLANGE
SIZE 150 & 300
STD. & NFPA FEEDER



TOP FLANGE
SIZE 2500
STD. FEEDER



TOP FLANGE
SIZE 700
STD. & NFPA FEEDER



TOP FLANGE
SIZE 2500
NFPA FEEDER

METRIC DIMENSIONS - MILLIMETERS

Size	Capacity Cu. Meter Per. Rev. Open	Closed	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	Weights Feeder Kg	Feeder & Drive Kg
150 Std	.018	.016	410	205	240	395	60	425	15	448	345	360	180	360	180	250	250	157	127	204
150 NFPA	.018	.016	410	205	240	395	60	425	15	448	345	360	180	360	180	250	250	157	127	204
300 Std.	.035	.031	500	250	290	416	106	470	18	490	383	420	210	420	210	300	300	187	190	294
300 NFPA	.035	.031	500	250	290	465	150	510	18	490	383	420	210	420	210	300	300	187	190	294
700 Std.	.082	.073	640	320	370	458	150	585	23	562	460	600	300	600	300	440	440	267	392	498
700 NFPA	.082	.073	640	320	370	776	130	666	23	570	460	600	300	600	300	440	440	267	392	498
2500 Std.	.284	.257	950	475	530	620	195	797	31	843	668	840	420	970	485	620	750	380	1305	1418
2500 NFPA	.284	.257	950	475	530	895	195	880	31	843	668	840	420	970	485	620	850	380	1305	1418

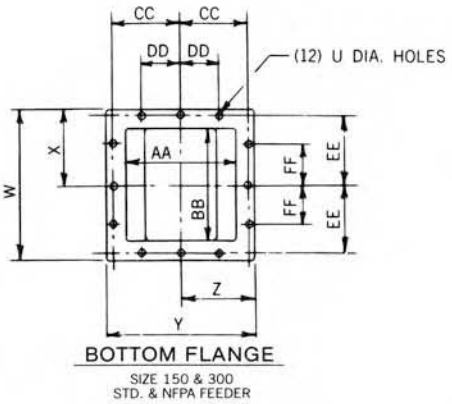
FOR D.I. & C.I.

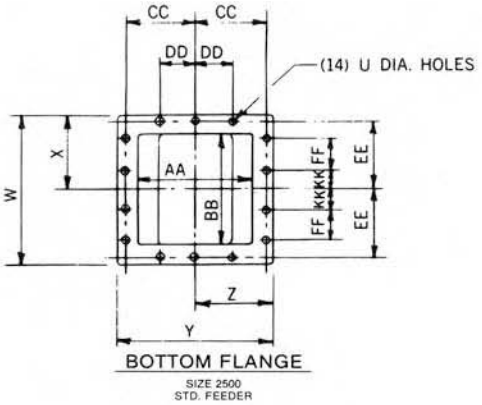
ENGLISH DIMENSIONS - INCHES

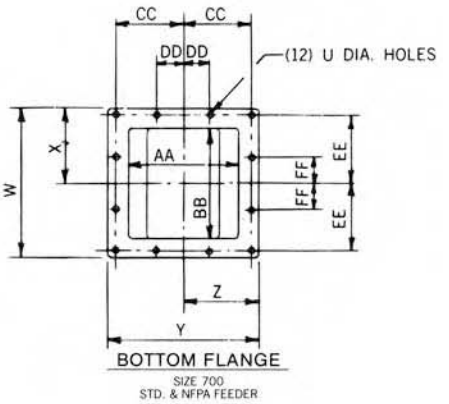
Size	Capacity Cu. Ft. Per. Rev. Open	Closed	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	Weights Feeder Lbs	Feeder & Drive Lbs
150 Std	.64	.55	16 1/8	8 1/16	9 7/16	15 9/16	2 3/8	16 3/4	9/16	17 5/8	13 9/16	14 3/16	7 1/16	14 3/16	7 1/16	9 13/16	9 13/16	6 3/16	280	450
150 NFPA	.64	.55	16 1/8	8 1/16	9 7/16	15 9/16	2 3/8	16 3/4	9/16	17 5/8	13 9/16	14 3/16	7 1/16	14 3/16	7 1/16	9 13/16	9 13/16	6 3/16	280	450
300 Std.	1.23	1.09	19 11/16	9 13/16	11 7/16	16 3/8	4 3/16	18 1/2	11/16	19 5/16	15 1/16	16 9/16	8 1/4	16 9/16	8 1/4	11 13/16	11 13/16	7 3/8	420	650
300 NFPA	1.23	1.09	19 11/16	9 13/16	11 7/16	18 5/16	5 7/8	20 1/16	11/16	19 5/16	15 1/16	16 9/16	8 1/4	16 9/16	8 1/4	11 13/16	11 13/16	7 3/8	420	650
700 Std.	2.88	2.6	25 3/16	12 5/8	14 9/16	18	5 7/8	23	7/8	22 1/8	18 1/8	23 5/8	11 13/16	23 5/8	11 13/16	17 5/16	17 5/16	10 1/2	865	1100
700 NFPA	2.88	2.6	25 3/16	12 5/8	14 9/16	30 9/16	5 7/8	26 1/4	7/8	22 1/8	18 1/8	23 5/8	11 13/16	23 5/8	11 13/16	17 5/16	17 5/16	10 1/2	865	1100
2500 Std.	10.03	9.08	37 3/8	18 1/16	20 7/8	24 7/16	7 11/16	31 3/8	1 1/4	33 3/16	26 5/16	33 1/16	16 9/16	38 3/16	19 1/8	24 7/16	29 1/2	14 15/16	2880	3130
2500 NFPA	10.03	9.08	37 3/8	18 1/16	20 7/8	35 1/4	7 11/16	34 5/8	1 1/4	33 3/16	26 5/16	33 1/16	16 9/16	38 3/16	19 1/8	24 7/16	29 1/2	14 15/16	2880	3130

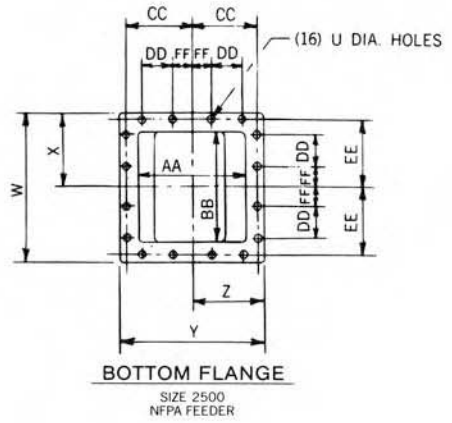
FOR D.I. & C.I.

OPEN OR CLOSED END ROTOR









NFPA FEEDER MEANS:
PULVERIZED FUEL FIRING FEEDERS AND AIRLOCKS

ALL UNITS WILL HAVE THE FOLLOWING MINIMUM FEATURES:
A - DESIGN WILL BE IN ACCORDANCE WITH NFPA 85F
B - HYDROSTATIC TESTING WILL BE AT 50 PSIG (3.5 Kg/Cm^2); THE MAXIMUM OPERATING PRESSURE DIFFERENTIAL WILL BE 2 PSIG (0.14 Kg/Cm^2).
C - ROTOR TIPS WILL BE BEVELED.
D - SPECIFIC FLANGE AND END PLATE DRILLINGS WILL BE USED TO AVOID INADVERTENT REPLACEMENT WITH A STANDARD UNIT.

150 ADAPTS TO 10" DIA
300 ADAPTS TO 12" DIA
700 ADAPTS TO 18" DIA
2500 N.A.

METRIC DIMENSIONS - MILLIMETERS

Size	T	U	V	W	X	Y	Z	AA	BB	CC	DD	EE	FF	GG	HH	JJ	KK	LL
150 Std	90	18	M16x2	410	205	360	180	250	300	157	100	182	100	–	–	–	–	15
150 COAL	110	18	M16x2	410	205	360	180	250	300	157	120	182	100	–	–	–	–	15
300 Std.	108	22	M20x2.5	470	235	420	210	300	350	187	108	212	108	–	–	–	–	15
300 COAL	135	22	M20x2.5	470	235	420	210	300	350	187	135	212	115	–	–	–	–	15
700 Std.	110	26	M24x3	660	330	600	300	440	500	267	110	300	110	–	–	–	–	20
700 COAL	95	26	M24x3	660	330	600	300	440	500	267	95	300	95	–	–	–	–	20
2500 Std.	230	38	M36x4	1060	530	840	420	620	840	380	230	490	230	445	230	115	115	25
2500 COAL	105	38	M36x4	1060	530	840	420	620	840	380	210	490	105	445	210	–	–	25

FOR STN. STL. & ALUM.

ENGLISH DIMENSIONS - INCHES

Size	T	U	V*	W	X	Y	Z	AA	BB	CC	DD	EE	FF	GG	HH	JJ	KK	LL
150 Std	3 9/16	11/16	M16x2	16 1/8	8 1/16	14 3/16	7 1/16	9 13/16	11 13/16	6 3/16	3 15/16	7 3/16	3 15/16	–	–	–	–	9/16
150 COAL	4 5/16	11/16	M16x2	16 1/8	8 1/16	14 3/16	7 1/16	9 13/16	11 13/16	6 3/16	4 3/4	7 3/16	3 15/16	–	–	–	–	9/16
300 Std.	4 1/4	7/8	M20x2.5	18 1/2	9 1/4	16 9/16	8 1/4	11 13/16	13 3/4	7 3/8	4 1/4	8 3/8	4 1/4	–	–	–	–	9/16
300 COAL	5 5/16	7/8	M20x2.5	18 1/2	9 1/4	16 9/16	8 1/4	11 13/16	13 3/4	7 3/8	5 5/16	8 3/8	4 1/2	–	–	–	–	9/16
700 Std.	4 5/16	1	M24x3	26	13	23 5/8	11 13/16	17 5/16	19 11/16	10 1/2	4 5/16	11 13/16	4 5/16	–	–	–	–	3/4
700 COAL	3 3/4	1	M24x3	26	13	23 5/8	11 13/16	17 5/16	19 11/16	10 1/2	3 3/4	11 13/16	3 3/4	–	–	–	–	3/4
2500 Std.	9 1/16	1 1/2	M36x4	41 3/4	20 7/8	33 1/16	16 9/16	24 7/16	33 1/16	14 15/16	9 1/16	19 5/16	9 1/16	17 1/2	9 1/16	4 1/2	4 1/2	1
2500 COAL	4 1/8	1 1/2	M36x4	41 3/4	20 7/8	33 1/16	16 9/16	24 7/16	33 1/16	14 15/16	8 1/4	19 5/16	4 1/8	17 1/2	8 1/4	–	–	1

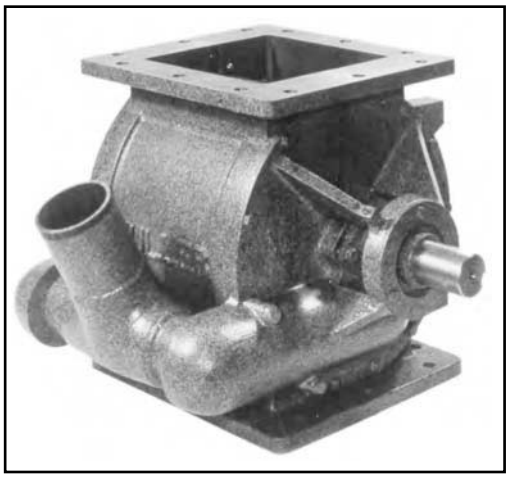
* V dimension is in metric

FOR STN. STL. & ALUM.

OPEN END ROTOR

APPLICATION:

The FLSmidth DA (Dual Air Inlet) Feeder is recommended for delivering dry, pulverized or granular materials into high or low velocity pressure pneumatic conveying systems. The feeder is equipped with an air-assist fluidizing feature to assist material discharge.



SPECIFICATION:

General The DA Feeder introduces material into the conveying system at highest volumetric efficiency when material flow into the feeder is controlled to permit free venting. The feeder may be used under a head of material when appropriate aeration is provided to create a path for relief of the reverse air flow. In operation, air enters a single inlet and passes into the rotor pocket through two (2) ducts integrally cast in the end plates, assuring complete fluidization and discharge. High efficiency is attained through the combination of gravity and air-sweeping of the fluidized material into the conveying line. This design principle assists greatly in discharging materials which have a tendency of hanging up in the rotor pockets. DA Feeder permits the use of smaller sized components and related equipment in pressure pneumatic conveying systems resulting in savings in initial equipment cost, installation cost and space requirements.

Available with or without motor drive, discharge pan and support base

Body

The DA Feeder is constructed of machined #50 cast iron and incorporates a deep packing gland, outboard anti-friction bearings and an extra heavy shaft. Lantern rings are provided to permit use of purge air when handling fine, powdery material to prevent contamination of shaft packing.

Rotor

The DA Feeder cast iron rotor features eight (8) equal pockets with volumes up to 1.6 cubic feet (.05m^3) per revolution. Rotors with beveling on the trailing edge are recommended for handling materials that have a tendency to smear.

Pressure

The DA Feeder is designed for pressure differentials up to 18 PSIG (1.27 Kg/cm^2).

Motor Mounting

Motor support lugs are cast as an integral part of the feeder body to permit the mounting of a gear motor directly on the units, resulting in a compact package requiring minimum space.

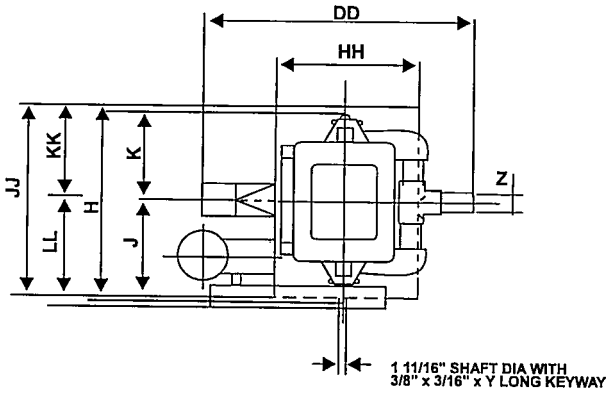
Motor

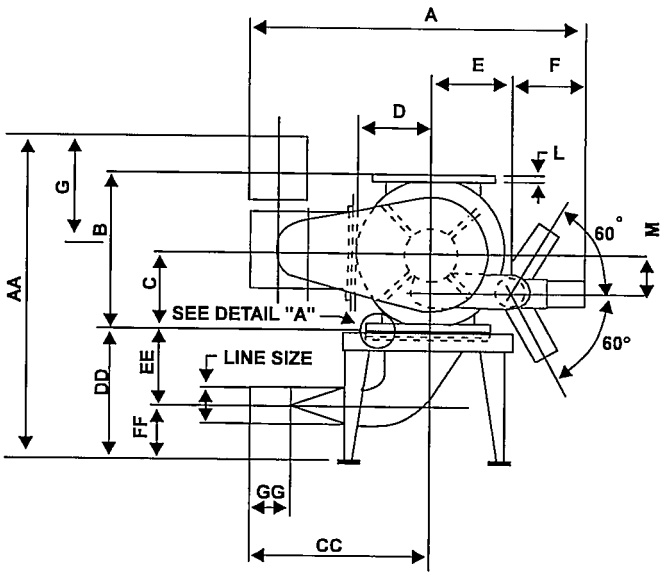
The DA Feeder with motor is equipped with a three (3) phase, 230/460 Volt A.C. 60Hz. TEFC, right angle motor unit. Sprocket and chain assembly with protective guard is included.

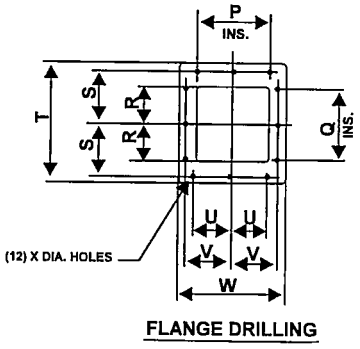
Discharge Pan and **Support Base** are optional and available at additional cost.

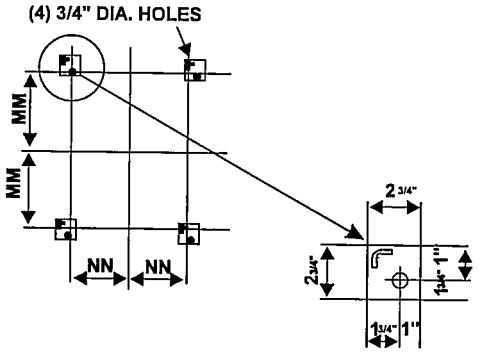
FEEDER DA ROTARY (AIRLOCK)

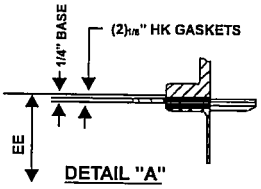
OPEN END ROTOR











FEEDER AND DRIVE ASSEMBLY DIMENSIONS

FEEDER	WT. LB.	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U	V	W	X	Y
DA50	545	35 13/16	15	7 1/2	7 3/4	8 5/8	8 3/8	13 3/8	25 1/4	13 3/4	11 1/2	3/4	3 7/8	3 1/2	8	9	4 1/2	6 1/2	14 1/2	4 1/2	5 1/2	12 1/2	11/16	2 3/8
DA100	700	41 11/16	20	10	9 1/2	11	9 1/8	13 13/16	29 3/16	16 3/8	13 3/16	1	4 3/8	4 1/2	10 3/4	11 1/4	5 1/2	8	18	5 1/2	7	16	13/16	3 1/4
DA160	1060	44 15/16	23 1/2	11 3/4	11	12 3/4	9 1/8	14 13/16	29 9/16	16 3/8	13 3/16	1	4 3/8	4 1/2	13	11 1/4	5 1/2	8 1/8	18	5 1/2	8 1/8	18	13/16	3 1/4

Dimensions in inches

PAN AND BASE ASSEMBLY DIMENSIONS

FEEDER	LINE SIZE	WT. LB.	AA	BB	CC	DD	EE	FF	GG	HH	JJ	KK	LL	MM	NN
DA50	3"	85	35	36	19	14 1/8	7 1/2	6 5/8	4	16	22	11	14 3/8	9 3/16	6 3/16
	4"														
DA100	3"	110	39 15/16	42 1/8	22	16 1/8	8 1/2	7 5/8	5	19 1/2	25 1/2	12 3/4	16 7/8	10 15/16	7 15/16
	4"														
	5"														
DA160	3"	125	42 11/16	43 7/8	22	16 1/8	8 1/2	7 5/8	5	21 1/2	25 1/2	12 3/4	17	10 15/16	8 15/16
	4"														
	5"														

Dimensions in inches

OPEN END ROTOR / RECTANGULAR AND CIRCULAR FLANGE

APPLICATION: FLSmidth TE Rotary Feeders with open end rotors, are designed to meter dry, pulverized and granular materials OR to serve as airlocks for pneumatic conveying systems. Feeders are available in capacity ranges to meet most plant requirements for vacuum, pressure and general purpose applications.

SPECIFICATION:

General

When installed in a pressure conveying system, the use of (optional) Lantern Rings and (standard) Air Purge is recommended when fine powdery material is being conveyed to prevent contamination of packing and bearing. The air purge should be set 2 to 4 PSIG (.14 to .28 Kg/cm^2) above conveying line pressure.

Body and End Plates

The body and end plates are heavily ribbed and constructed of #50 cast iron. Motor support lugs are cast as an integral part of body and permit the mounting of the gearmotor directly on the unit, resulting in a compact package.

The end plates have integral cast outboard bearing supports and male-female joints between end plates and feeder body ensuring concentricity.

Rotor

All rotors are constructed of machine #50 cast iron and have six or eight vanes with four vanes in seal between inlet and outlet except for the 2" totally enclosed feeder (airlock) which has four vanes.

The rotor shaft has a tapered hub to reduce friction from trapped material between rotor and end plates. Anti-friction bearings are shielded, and mounted on rotor shaft outboard of the packing gland.

Beveling of the rotor vane is recommended if the material has a tendency to build up and smear.

Motor Mounts

All gearmotors are mounted directly to feeder body except the 2" and 5" (50 mm and 125 mm) TE Feeders which incorporate a single common steel base plate.

Motor Drive

All fractional gearmotors are TENV. All integral horsepower gearmotors are TEFC. All gearmotors are 3 phase, 230/460 Volts, 60 Hz.

Special Notes

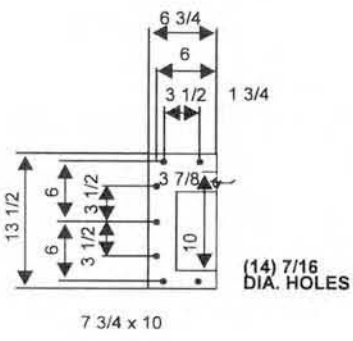
All standard feeders (airlocks) are designed to handle material having a maximum temperature of 150° F (65° C). Above 150° F (65° C requires additional periphery and end clearances. From 700° F to 900° F (371° C to 482° C) requires additional clearance and water cooled shaft. Above 900° F (482° C) and not in excess 1200° F (650° C) requires ductile iron construction, special bearings and water cooled rotor.

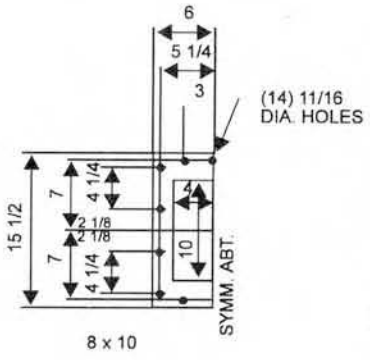
FEEDER (ONLY):

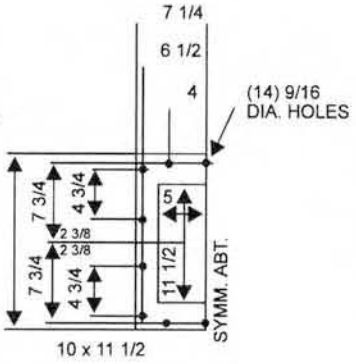
SIZE (Inches)	DISPLACEMENT Cu.Ft./Rev.	HP	Standard Rotor Part No.	Beveled Rotor Part No.	Approx. Wt. (lbs)
7 3/4 x 10	.15	3/4 - 1	132-68-4-0302-00	132-68-4-0302-02	180
8 x 10	.30	1	132-68-4-0303-00	132-68-4-0303-02	280
10 x 11 1/2	1.00	1 - 2	132-68-4-0404-00	132-68-4-0404-02	430
12 x 13	1.80	1 1/2 - 2	132-68-4-0401-00	132-68-4-0413-02	670
12 x 20	2.75	1 1/2 - 2	132-68-4-0402-00	132-68-4-0402-02	920
16 x 16	3.27	2 - 3	132-79-4-0502-00	132-79-4-0502-02	1350
16 x 27	5.19	2 - 3	132-79-4-5303-00	132-79-4-0503-02	1850

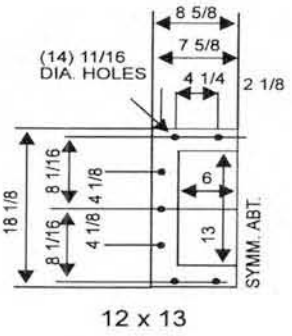
OPEN END ROTOR / RECTANGULAR FLANGE

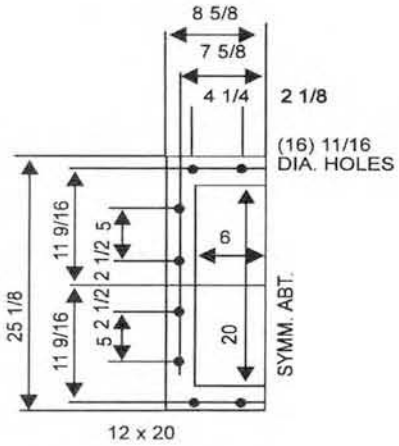
RECTANGULAR FLANGE MODEL

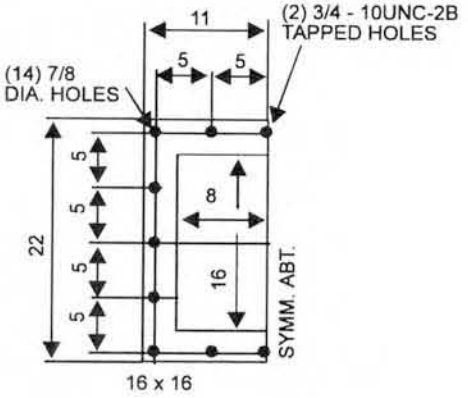


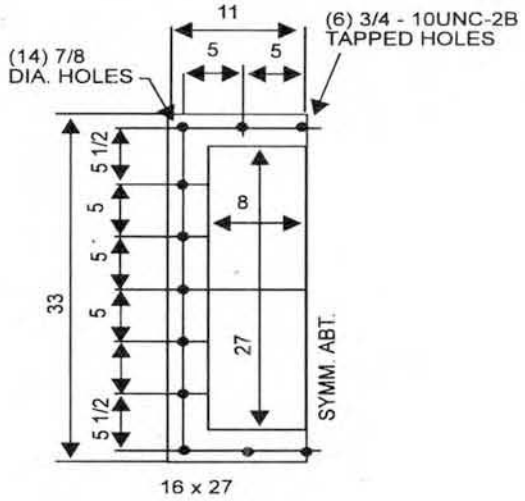


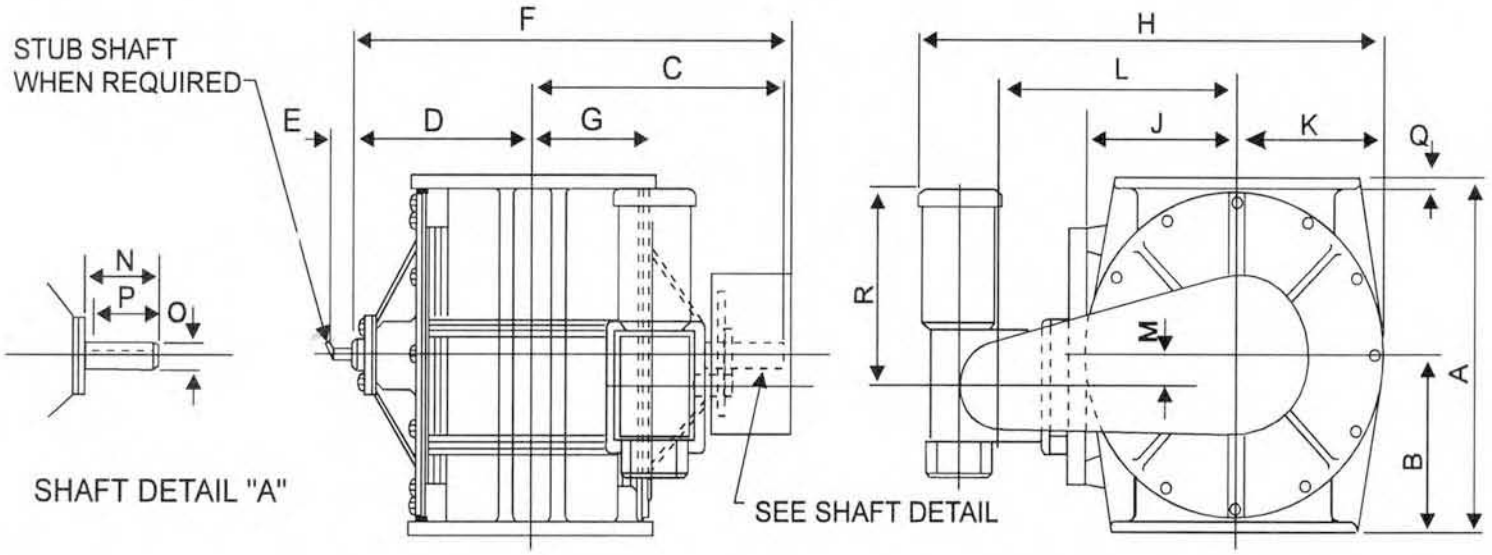












FEEDER AND DRIVE ASSEMBLY

OPEN END ROTOR / RECTANGULAR FLANGE

RECTANGULAR FLANGE MODEL

SIZE IN INCHES	DISP. PER REV. IN CU. FT.	A	B	C	D	E	F	G	H	J	K
7 3/4 X 10	.15	8	4	13 1/2	10	2	23 3/4	5 5/8	28 1/8	7 3/4	6 3/4
8 X 10	.30	12 3/4	6 3/8	14 1/8	10 7/8	2	26 1/8	6 15/16	25 3/16	7 1/8	7
10 X 11 1/2	1.0	18	9	14 1/2	11 1/12	2	27	7 3/4	31 7/16	9 3/4	9 5/8
12 X 13	1.8	20 3/8	10 3/16	17	12 1/4	2	30 1/4	8 1/2	36 11/16	12 3/8	12 1/4
12 X 20	2.75	20 3/8	10 3/16	20 1/2	15 3/4	2	36 1/2	10 1/4	41 7/16	12 3/8	13 1/4
16 X 16	3.27	29	14 1/2	22 3/4	16 1/4	2	39 3/4	10 1/2	39 1/8	13 3/8	13 1/4
16 X 27	5.19	29	14 1/2	28 1/4	21 3/4	2	50 3/8	16 13/16	39 1/8	13 3/8	13 1/4

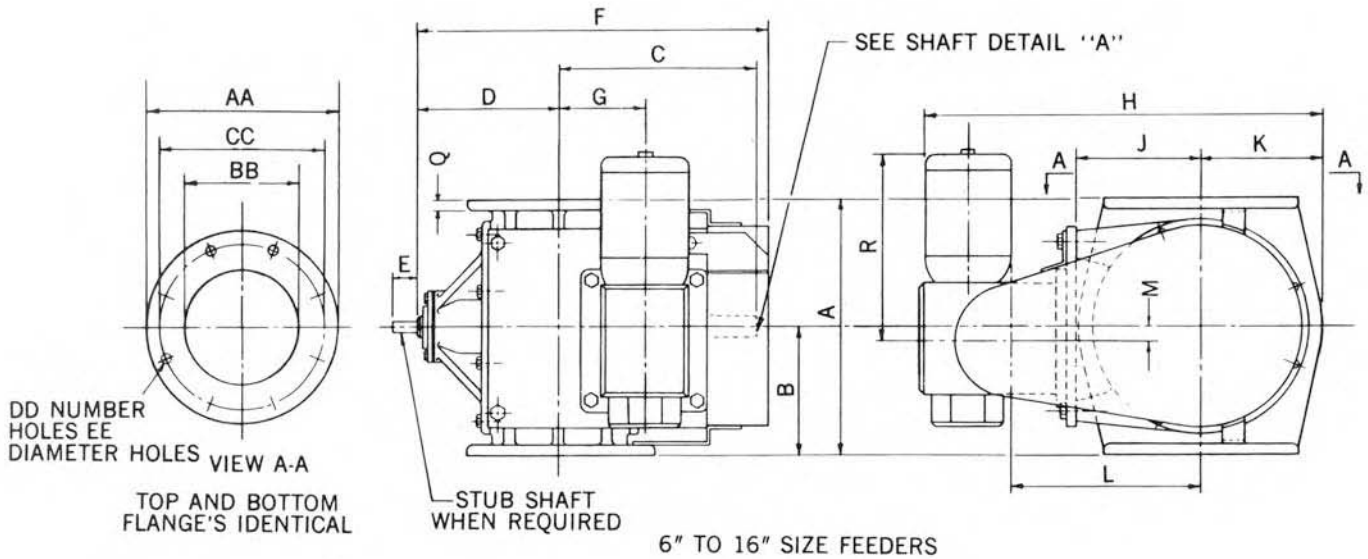
Dimensions in inches

L	M	N	O	P	Q	R	WT. LBS.		PURGE AIR C.F.M.
							FEEDER AND DRIVE	FEEDER ONLY	
14 15/16	2	3 23/32	1.437	3/8 x 3/16 x 3 1/2	5/8	14	380	180	11.5
11 7/8	0	3 15/32	1.437	3/8 x 3/16 x 3 1/4	3/4	13 3/8	440	280	11.5
15	0	3 5/32	1.687	3/8 x 3/16 x 3 1/8	3/4	14 13/16	600	430	13.5
17 5/8	0	4 15/16	2.187	1/2 x 1/4 x 4 1/2	3/4	14 13/16	850	670	17.5
20 3/8	4 1/2	4 15/16	2.187	1/2 x 1/4 x 4 1/2	3/4	16 1/16	1150	920	17.5
18 5/8	2 1/2	6 21/32	2.187	1/2 x 1/4 x 6 3/8	1	16 1/16	1620	1350	20.0
18 5/8	2 1/2	6 21/32	2.187	1/2 x 1/4 x 6 3/8	1	16 1/16	2140	1850	20.0

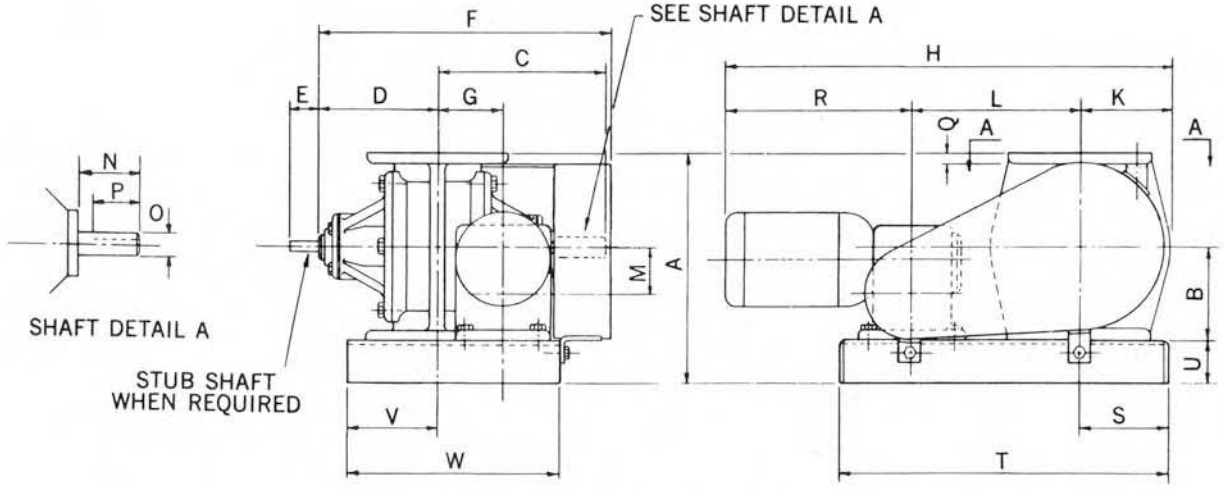
Dimensions in inches

OPEN END ROTOR / CIRCULAR FLANGE

CIRCULAR FLANGE MODEL



6" TO 16" SIZE FEEDERS



2" AND 5" SIZE FEEDERS

OPEN END ROTOR / RECTANGULAR FLANGE

CIRCULAR FLANGE MODEL

Size in Inches	Displ. per Rev. in Cu. Ft.	A	B	C	D	E	F	G	H	J	K	L	M	N
2	.014	7 1/2	3 3/4	7	5	2	12 1/4	1 3/8	26 5/8	-	5 1/16	10	7/8	2 1/8
5	.18	13	6 1/2	11 1/2	8 1/4	2	20 3/16	4 1/2	31	-	6 1/4	11 5/16	3 1/4	3 1/2
6	.26	14	7	12	8 3/4	2	21 5/16	5 1/8	23 9/16	6 5/8	6 1/2	11 1/16	0	3 1/2
8	.57	17 3/4	8 7/8	13 3/4	10	2	24 3/4	7 1/16	28 3/16	8 5/8	8 1/2	13 3/8	0	4
10	1.26	21 1/2	10 3/4	15 3/4	11	2	27 3/4	7 1/8	33 3/16	10 5/8	10 1/2	15 7/8	0	5
12	2.30	25 1/2	12 3/4	16 3/4	12	2	29 3/4	8 1/8	37 3/16	12 5/8	12 1/2	17 7/8	0	5
16	3.50	32	16	19 1/4	14 1/2	2	34 3/4	9 7/16	39 3/4	13 3/4	13 1/2	19	3	5

O	P	Q	R	S	T	U	V	W	AA	BB	CC	DD	EE	Weight in Pounds		Purge Air SCFM
														Feeder and Drive	Feeder Only	
.625	3/16 x 3/32 x 2 Lg.	1/2	12 1/8	4 1/2	18 5/8	3	4 3/16	8 1/4	6	2	4 3/4	4	11/16	200	40	5.0
1.437	3/8 x 3/16 x 3 3/8 Lg.	3/4	13 3/16	6	23	3	8 1/2	14 3/4	10	5	8 1/2	8	11/16	380	180	11.5
1.437	3/8 x 3/16 x 3 1/4 Lg.	3/4	12 9/16	-	-	-	-	-	11	6	9 1/2	8	11/16	370	210	11.5
1.687	3/8 x 3/16 x 4 Lg.	3/4	13 5/8	-	-	-	-	-	13 1/2	8	11 3/4	8	11/16	470	300	13.5
1.687	3/8 x 3/16 x 5 Lg.	7/8	14 13/16	-	-	-	-	-	16	10	14 1/4	12	11/16	700	520	13.5
1.687	3/8 x 3/16 x 5 Lg.	1	14 3/16	-	-	-	-	-	19	12	17	12	11/16	940	760	13.5
2.187	1/2 x 1/4 x 4 7/8 Lg.	1 1/8	16 1/16	-	-	-	-	-	23 1/2	16	21 1/4	16	13/16	1280	1100	17.5

Feeder displacement listed at 100% efficiency
Dimensions in inches
Gear motor, electrical characteristics - 3 Phase, 60 cycle, 230/460 Volt

FEEDER (only)

Size Diam. (inches)	Displacement Cu. Ft./Rev.	Standard Rotor Part No.	Beveled Rotor Part No.	HP
2	.014	132-68-4-0003-00	132-68-4-0003-03	1/2
5	.18	132-68-4-0004-00	132-69-4-0008-00	3/4
6	.26	132-68-4-0002-00	132-69-4-0009-00	3/4 - 1
8	.57	132-68-4-0102-00	132-69-4-0110-00	1 - 1 1/2
10	1.26	132-68-4-0101-00	132-69-4-0101-02	1 - 2
12	2.30	132-68-4-0201-00	132-69-4-0209-00	1 1/2 - 2
16	3.50	132-68-4-0204-00	132-68-4-0204-02	2 - 3

FEEDER P ROTARY (AIRLOCK)

CLOSED END ROTOR

APPLICATION: FLSmidth "P" (Pressure) Rotary Feeders (airlocks) with Closed End Rotors are designed to meter dry, pulverized or granular materials; or serve as airlocks for pressure and vacuum pneumatic conveying systems. Feeders are available in capacity ranges to meet most plant requirements for vacuum, pressure and general-purpose applications.

The closed end rotor eliminates the need for close clearances between rotor ends and end plates and is advantageous when handling materials that have a tendency to smear or build up such as resins and petrochemical.

When installed in a pressure conveying system the use of air purge (standard on all sizes) is recommended when handling fine powdery material. The air purge should be set 2 to 4 PSIG (.14 to .28 Kg/cm2) above conveying line pressure.

SPECIFICATION:

General

FLSmidth manufactures three (3) types of “P” feeders with closed end rotors:
Type I Body end plates constructed of #50 cast iron with fabricated steel rotor.
Type II Body and rotor constructed of type 304 stainless steel with aluminum end plates.
Type III Complete 304 stainless steel (body, rotor and end plates).

Body and End Plates

The body and end plates have heavy-duty construction and permit minimum rotor clearances. Motor support lugs are cast as an integral part of the body, and permit the mounting of the gearmotor directly on the unit, resulting in a compact package.

The end plates have integral-cast outboard bearing supports and male-female joints between end plates and feeder body ensuring concentricity.

Rotor

All rotors are beveled and constructed of type 304 stainless steel or fabricated steel. Rotors have six or seven vanes with at least four vanes in seal between inlet and outlet.

Bearings are shielded, anti-friction and mounted on rotor shaft outboard of the packing gland.

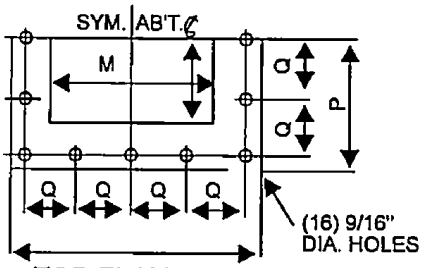
Motor Mount & Drive

Gearmotors are mounted directly to feeder body. Fractional gearmotors are TENV. Integral horsepower gearmotors are TEFC. All gearmotors are 3 phase, Volts AC, 60 Hz.

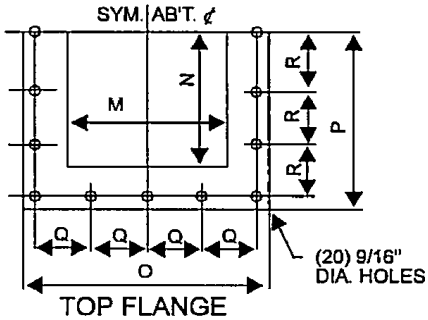
Special Notes

All standard “P” Rotary feeders (airlocks) are designed to handle material having maximum temperature of 150°F (65°C). Above 150° F to 450° (65°C to 232°C) requires additional periphery clearance.

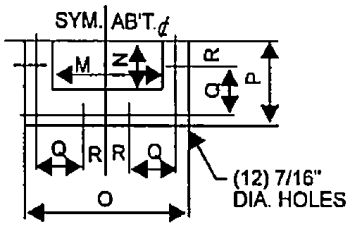
CLOSED END ROTOR



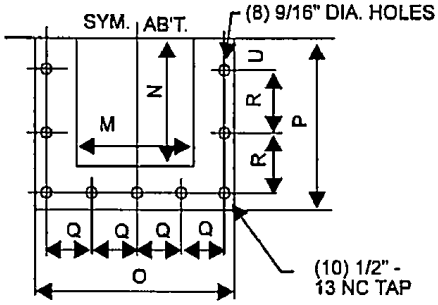
TOP FLANGE
VIEW AA
10" PRESSURE LOCK



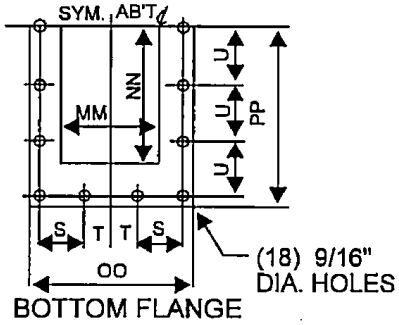
TOP FLANGE
VIEW AA
10" X 18" PRESSURE LOCK



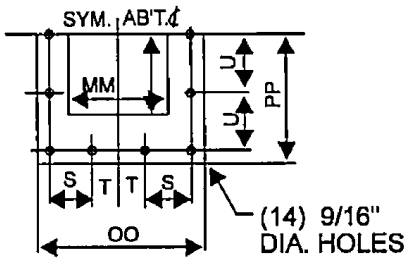
TOP FLANGE
VIEW AA
8" PRESSURE LOCK



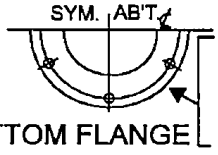
TOP FLANGE
VIEW AA
15" PRESSURE LOCK



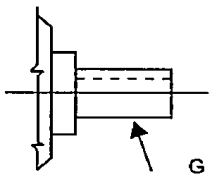
BOTTOM FLANGE
VIEW BB
10" X 18" PRESSURE LOCK

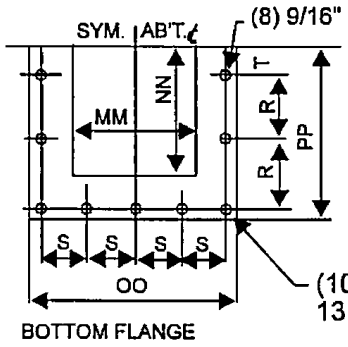


BOTTOM FLANGE
VIEW BB
10" PRESSURE LOCK



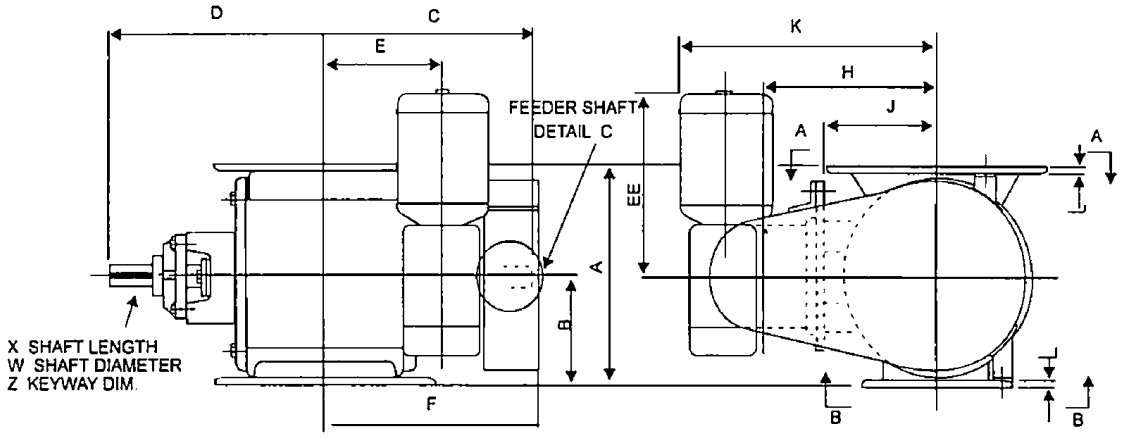
BOTTOM FLANGE
VIEW BB
8" PRESSURE LOCK





BOTTOM FLANGE

VIEW BB
15" PRESSURE LOCK



CLOSED END ROTOR

Size in Inches	Displ. Per Rev in Cu. Ft.	A	B	C	D	E	EE	F	G	H	J	K	L	M	N	O	P	MM	NN
8	.15	12	6 1/4	12 3/4	12 3/4	6 3/4	12 9/16	13 1/2	3 1/16	10 3/16	5 3/4	16 3/16	3/8	7	3 1/2	10 1/2	5 1/4	__	__
10	.39	15	7 1/2	15 1/2	15 1/2	8 9/16	13 3/8	16 5/8	3	12 7/8	8 1/2	19 3/16	1/2	10 1/2	5 1/4	16	8	6 1/2	5
10 x 18	.64	15	7 1/2	22 1/4	20 3/4	15 9/16	14 13/16	23 1/4	4	13 3/8	8 1/8	20 3/16	7/16	10 1/2	9 1/4	16	12	6 1/2	9
15	1.33	23	11 1/2	21 7/16	19 11/16	12 1/2	14 13/16	22	3 3/4	18 5/8	10 5/8	25 7/8	7/16	8	8	13 1/4	10 11/16	10	9 1/16

Size in Inches	OO	PP	Q	R	S	T	U	V	W	X	Keyway		Purge Air SCFM	Wt. in Lbs.	
											Y	Z		Feeder Only	Feeder w/Drive
8	__	__	3 1/8	1 1/2	__	__	__	1 1/4	1 1/4	3 1/16	1/4 x 1/8 x2 3/4 Lg.	1/2 x 1/8 x 2 3/4 Lg.	7.2	120	270
10	11	8	3 5/8	__	3	1 3/4	3 5/8	1 7/16	1 7/16	3	3/8 x 3/16 x2 7/8 Lg.	3/8 x 3/16 x 2 7/8 Lg.	7.7	260	420
10 x 18	11	12	3 5/8	3 3/4	3	1 3/4	3 3/4	1 11/16	1 11/16	2 1/2	3/8 x 3/16 x 4 Lg.	3/8 x 3/16 x 2 1/2 Lg.	13.2	300	470
15	15 1/4	10 11/16	3	4	3 1/2	2 1/16	1 11/16	1 3/4	3/4	2	3/8 x 3/16 x3 3/4 Lg.	__	13.2	842	1022

Feeder Displacement Listed at 100% Efficiency
Dimensions in Inches
Gear Motor, Electrical Characteristics - 3 Phase, 60 Cycle, 230/460 Volt

A. FEEDER (only)

Size (Inches)	Displacement Cu. Ft./Rev.	HP	Cast Iron Fabricated Steel Rotor	Stainless Steel Aluminum End Plates	Complete 304 Stainless Steel
8	.12	3/4 - 1	305-64-4-0071-00	132-68-4-1851-02	132-68-4-1851-01
10	.39	1	132-70-4-1901-03	132-70-4-1901-02	132-70-4-1901-01
10 x 18	.64	1	132-70-4-2000-03	132-70-4-2000-02	132-70-4-2000-01
15	1.33	1 1/2 - 2	132-68-4-2102-00	132-71-4-2100-02	132-71-4-2100-00

FOR FLOW CONTROL OF PULVERIZED MATERIALS

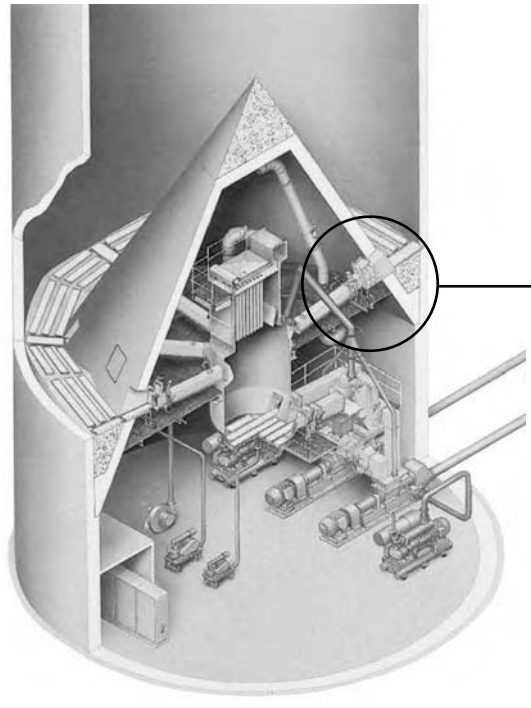
Flow control gates provide an accurate means of flow control and positive shut-off of pulverized material from storage silos and feed bins. Four different sizes provide a range of control from complete shut-off up to 20,000 ft^3/hour! Units are available for electric or air operation.

Features	Benefits
Aerated Style	• No “dead” material • Self cleaning
Roller Shaped Gate	• Dust tight shut-off • Smooth operation • Breaks up lump material
Multiple Aperture Openings	• Accurate flow control • Linear control
Felt Seal	• Positive seal • Wiping action to clean roller
Multi-Location Actuators	• Easy installation
Manual Override	• Disengage actuator for emergency closure
Wear Protector	• Virtually no seal maintenance required

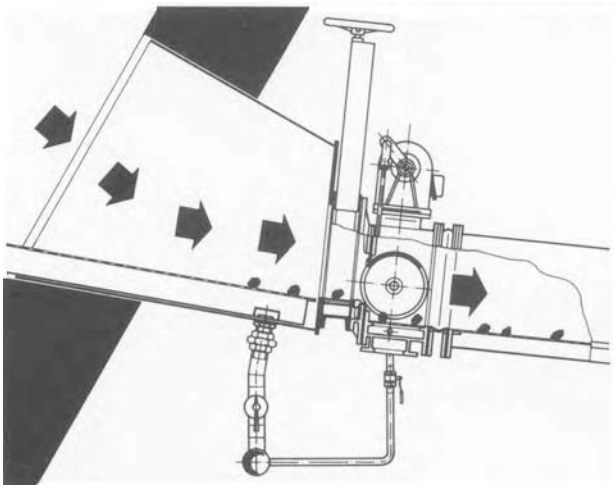
Typical Applications

The rotary metering flowgate can control pulverized materials passing 35 mesh. Materials typically handled are:

- Cement raw meal
- Finish cement
- Fly ash
- Limestone
- Gypsum
- Soda ash
- Talc
- Resins
- Ground ores
- Phosphates
- Clay
- Bentonite
- Hydrated lime



Central Cone Blending Silo



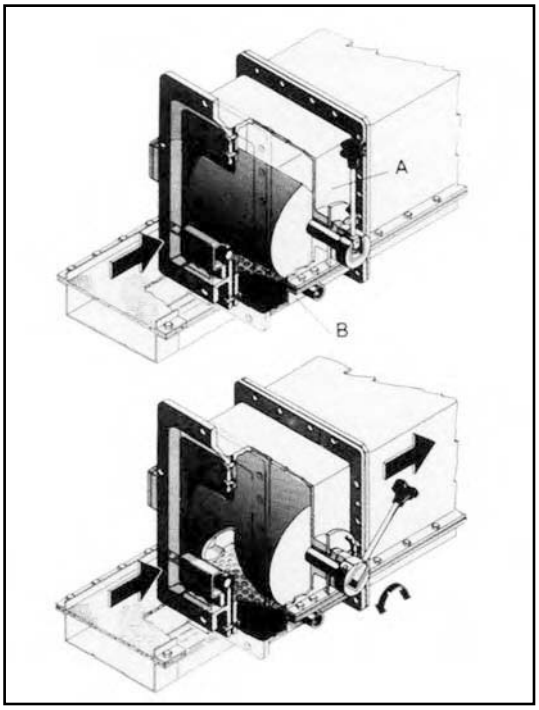
Enlarged area of section circled at left

ROTARY METERING FLOWGATE

OPERATION

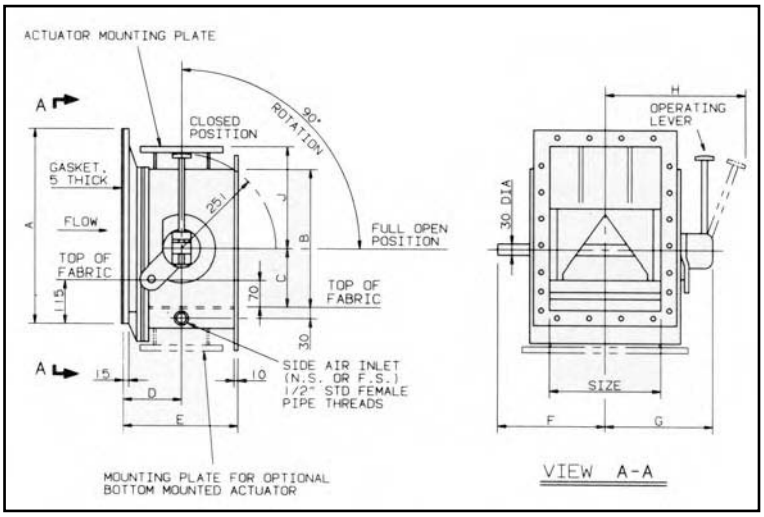
The flow control gate is an element of the Airslide® (pictured at right). It consists of an upper chamber (A) - which is the conveying chamber and the plenum (B) - which is supplied with fluidizing air. A fabric permeable to air divides the upper and lower chambers. A roller shaped gate is placed within the upper chamber. The roller is sealed by an exchangeable felt gasket and includes an adjustable aperture for the flow-through of bulk materials. The function of the gate is dust tight cut-off of a silo discharge and infinitely controlled discharge of pulverized material from silos or feed bins.

Rotating the roller in one direction will close the silo discharge opening. When rotating the roller in the opposite direction, the adjustable aperture will control the flow of material. By rotating the roller, it is possible to vary the cross section of the aperture thus controlling the flow rate.



PRODUCT SPECIFICATIONS

Body: Carbon steel
Inlet housing: Cast iron
Seal: Felt
Power requirements:
Electric: 3PH/1PH 50-60 HZ
Air: 80 PSIG

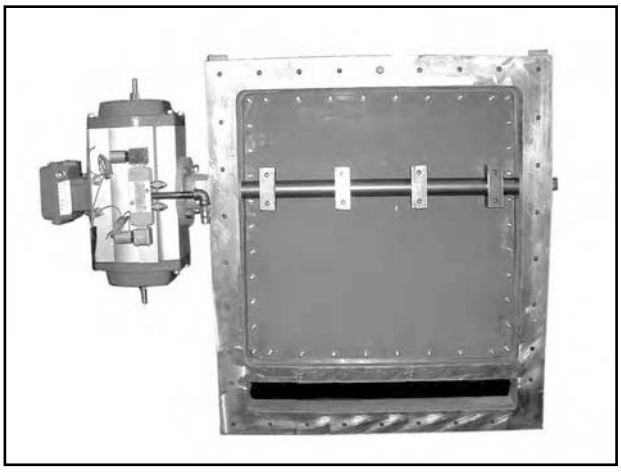


DIMENSIONS IN MILLIMETERS

CAPACITY FT^3/HR	CAPACITY M^3/HR	SIZE	A	B	C	D	E	F	G	H	J	WT. LBS	WT. KG
2500	71	200	515	360	150	155	305	280	280	370	270	198	90
6000	170	300	515	360	150	155	305	330	330	420	270	298	135
10,000	283	400	620	465	195	185	380	380	380	470	325	375	170
20,000	566	500	620	465	195	185	380	430	430	520	325	419	190

NOTE: DIMENSIONAL DATA FOR REFERENCE ONLY. SUBJECT TO CHANGE WITHOUT NOTICE.

APPLICATION: FLSmidth Airslide butterfly flowgates are used for controlling the flow or the direction of flow of fluidized material in Airslide convey systems. Standard type and High Top gates are available in sizes 100 - 600mm (4" - 24"). Hand lever actuator with locking handle and air cylinder actuators are available.



SPECIFICATION:

Basic Valve

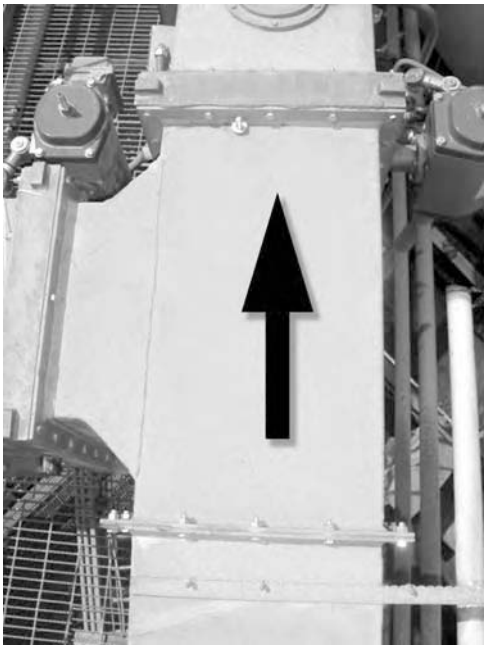
Housing is cast aluminum with machined integral actuator brackets and mounting flanges drilled to match FLSmidth Airslide dimensions. Carbon steel rotor with flexible seal for positive cutoff. Urethane (250° F) and Viton (450° F) seals are available. Bushing type bearings protected by O-ring shaft seals.

Drives

Hand lever actuator with locking handle for throttling control or Heavy-duty air cylinder actuators with single solenoid, 120v, NEMA 4, integrally mounted and pre-piped with speed controls. Two single pole double throw (SPDT) position indication switches.

Options:

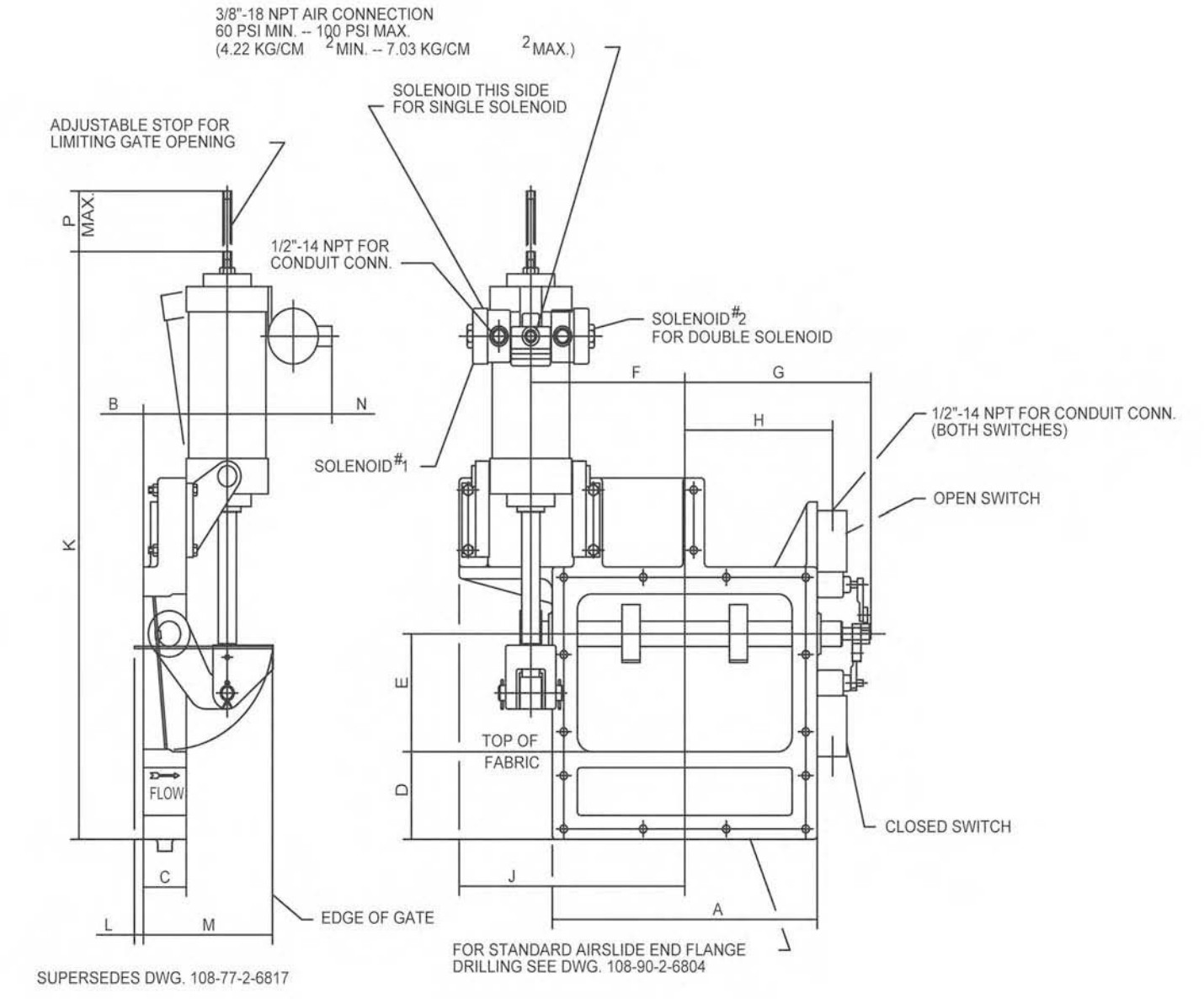
- Dual solenoids
- Voltages
- Double pole double throw (DPDT)
- Limit switches • Special designs
- Stainless steel rotors



Two flowgates on a tee.

STANDARD DESIGN

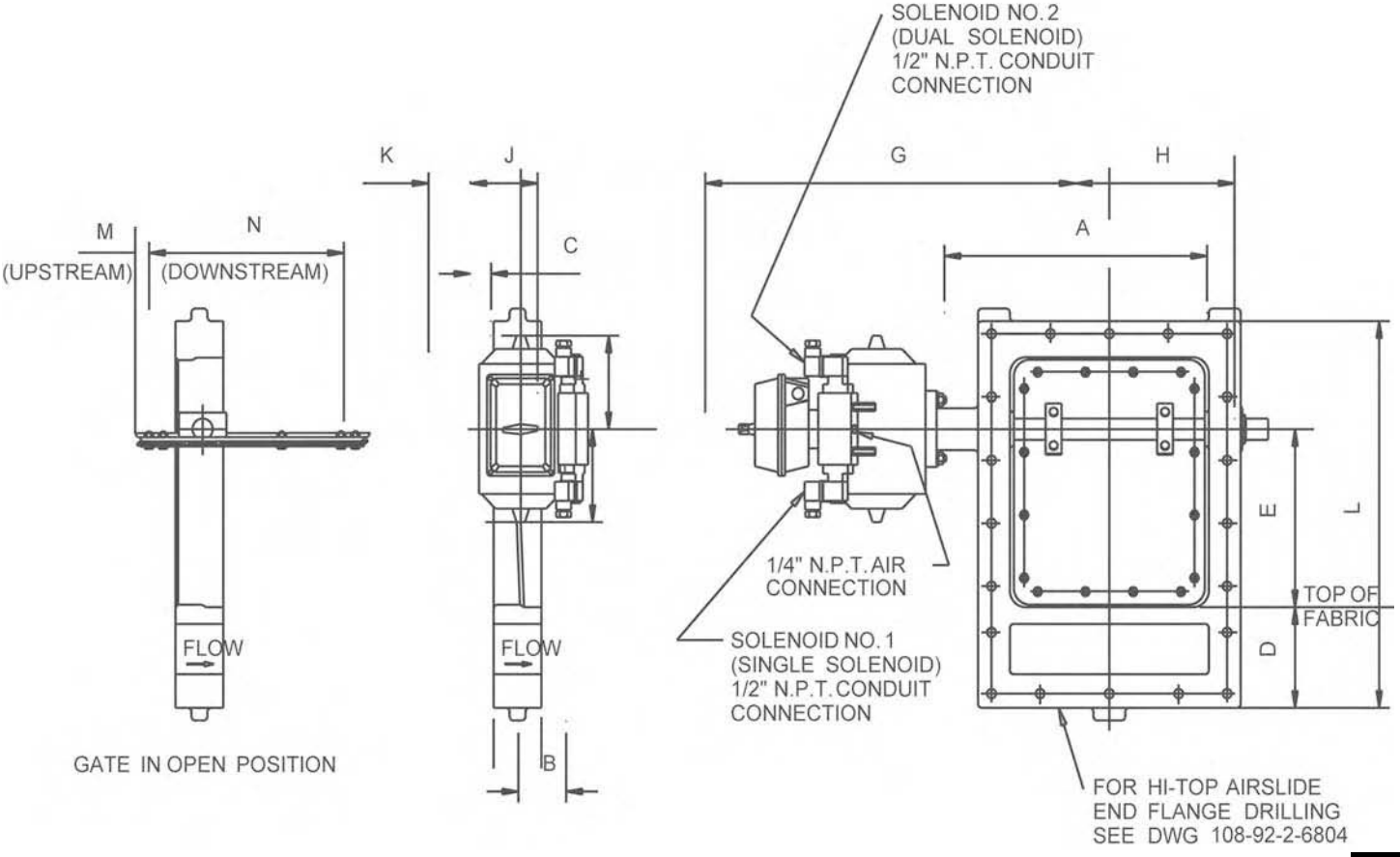
AIRSLIDE BUTTERFLY FLOWGATE - AIR OPERATED																
TOTAL WEIGHT LBS	TOTAL WEIGHT KGS	DIMENSIONS														
		SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P
28	13	100	165	97	40	85	63	105	153	105	180	562	10	85	128	134
30	14	150	215	97	40	85	63	130	177	130	205	562	10	85	128	134
51	23	200	265	102	45	110	115	160	205	155	250	685	9	138	141	140
62	28	250	315	102	45	110	115	185	230	180	275	685	9	138	141	140
80	36	300	370	117	60	110	148	215	260	207	315	756	16	181	154	152
104	47	350	420	117	60	110	155	240	285	232	340	798	59	188	154	152
112	51	400	470	117	60	110	155	265	310	257	380	795	58	188	165	152
150	68	480	570	132	75	122	171	320	357.5	307	435	850	63	213	165	152
195	88	600	725	148	75	160	184	394	434	384	509	962	70	226	165	190



HI-TOP DESIGN

AIRSLIDE BUTTERFLY FLOWGATE (HI-TOP) - AIR OPERATED															
		DIMENSIONS													
TOTAL WEIGHT LBS	TOTAL WEIGHT KGS	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N
		100													
		150													
52	24	200	280	60	26	120	212	154	496	174	83	60	460	51	246
62	28	250	330	60	26	120	212	154	521	199	83	60	460	51	246
74	34	300	380	60	24	120	225	154	546	224	83	60	560	137	261
97	44	350	430	60	24	120	315	157	591	249	91	69	660	146	352
116	53	400	490	75	30	125	315	196	660	280	108	85	670	138	359
177	80	480	570	75	30	125	350	196	700	320	108	85	730	163	395
		600	725	75	30	160	386	196	775	376	108	85	820	166	428

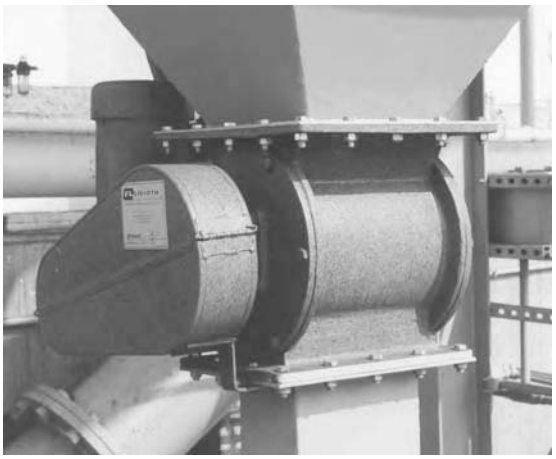
NOTE:
1. All dimensions are in millimeters, except as noted.
2. Butterfly Flowgates are available with actuator on right hand side (standard) as shown, or left hand.
3. Butterfly Flowgates are designed to be used for material diversion only. REF: 108-92-2-6826. They are not to be used as a silo outlet flow control valve (For applications contact engineering)



DISCHARGE VALVE SHROUDED SUCTION AIRLOCK

APPLICATION:

The FLSmidth Shrouded Suction Airlock provides a discharge seal on dust collectors. It may be used for other similar discharge or feeder applications.



SPECIFICATION:

General The FLSmidth Shrouded Suction Airlock uses a rotor with closed vane pockets which keeps material from contacting the end plates. This valve is primarily designed to release material at relatively fixed rates for dust collector applications.
Handles materials up to 400°F (205°C). Maximum temperature surrounding motor 104°F (40°C). Higher temperature options at additional cost. Available with or without motor drive. Pressure differential up to 30" W.G.

Body All #50 cast iron construction machined for close tolerances.

Rotor Fabricated steel with closed ends. Four pockets. optional, Standard or Beveled rotor vanes. This valve is equipped with shielded anti-friction bearings. End plates are fabricated steel bolted and taper pinned to the cast body.

Motor Mounting Motor support lugs cast as an integral part of the feeder body permits the mounting of the gear motor directly on the unit resulting in a compact package.

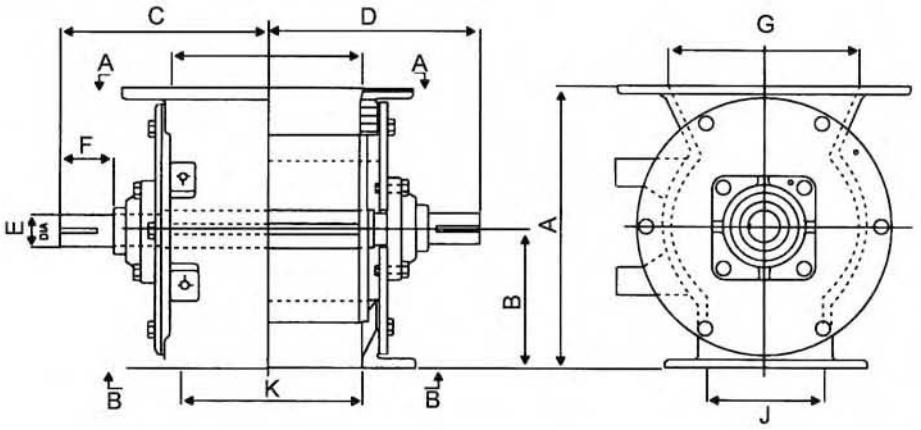
Motor The FLSmidth shrouded rotary airlock with drive unit is equipped with a right angle gear motor, 3 phase, 230/460 Volt, 60 Hz. Standard airlock speed is 15 rpm. Gear motor speed 35 rpm. Sprockets and chain included.

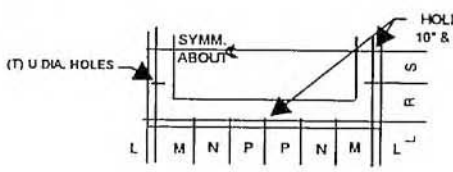
ORDER DATA:

Specify quantity, description, feeder or feeder with drive, size and part number.
DESCRIPTION: SHROUDED ROTARY AIRLOCK

Size (Inches)	Displacement Cu. Ft./Rev.	Standard HP/RPM	Weight (lbs.)	Part No.
A. FEEDER (only)				
8	0.16	NAB	100	305-65-4-0638-00
10	0.41	NAB	230	305-64-4-0786-00
10 x 18	0.68	NAB	270	305-65-4-0584-00
15	1.55	NAB	715	305-73-4-0013-00
B. FEEDER with drive				
8	0.16	1/2 hp/15 rpm	250	132-69-4-5006-04
10	0.41	1/2 hp/15 rpm	380	132-69-4-5007-04
10 x 18	0.68	3/4 hp/15 rpm	420	132-69-4-5010-04
15	1.55	1-1/2 hp/15 rpm	880	305-73-4-0017-00

NA = Not applicable. A number of options are available for this feeder. Explosion-proof motor, spark-resistant chain and high temperature construction. Contact FLSmidth for details.

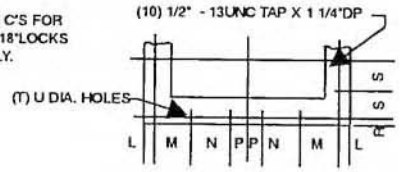




VIEW A-A

TOP FLANGE

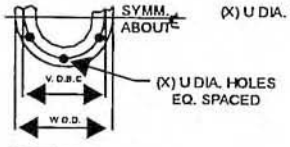
8", 10" & 10" X 18" SHROUDED SUCTION LOCK



VIEW A-A

TOP FLANGE

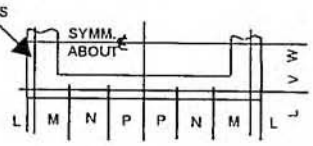
15" SHROUDED SUCTION LOCK



VIEW B-B

BOTTOM FLANGE

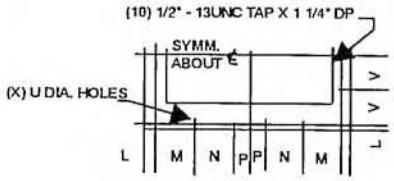
8" SHROUDED SUCTION LOCK



VIEW B-B

BOTTOM FLANGE

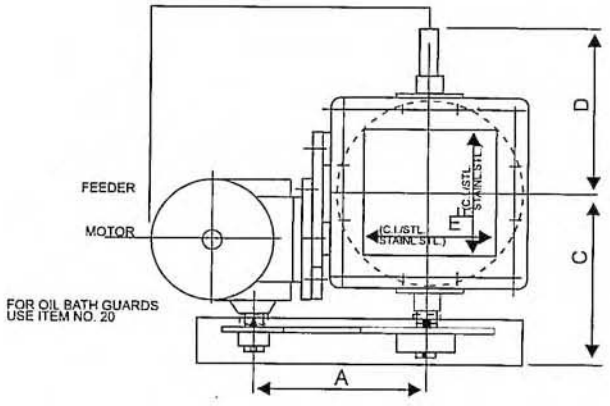
10" & 10" X 18" SHROUDED SUCTION LOCK

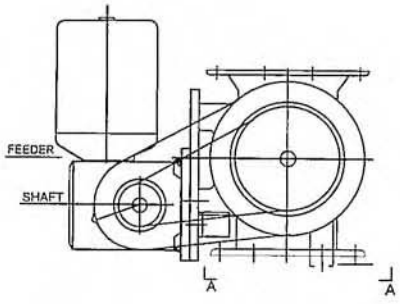


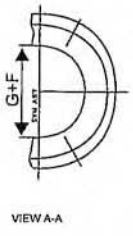
VIEW B-B

BOTTOM FLANGE

15" SHROUDED SUCTION LOCK







DISCHARGE VALVE SHROUDED SUCTION AIRLOCK

INSIDE FLG. DIMENSIONS

SIZE	No. of Pockets	Cu.Ft. Displ.	Wt. (Lbs.)	Max. R.P.M.	DIMENSIONS IN INCHES					
					A	B	C	D	E	F
8” SHROUDED SUCTION AIRLOCK	4	.16	100	30	12	6-1/4	8-7/8	8-7/8	1	2-7/16
10” SHROUDED SUCTION AIRLOCK	4	.41	230	30	15	7-1/2	11-3/4	11-3/4	1-3/4	3
10” x 18” SHROUDED SUCTION AIRLOCK	4	.68	270	30	15	7-1/2	15-3/4	15-3/4	1-3/4	3
15” SHROUDED SUCTION AIRLOCK	4	1.55	715	30	23	11-1/2	17-1/4	17-1/4	1-3/4	3-13/16

Top Flg.		Bott. Flg.		DIMENSIONS IN INCHES										
G	H	J	K	L	M	N	P	R	S	T	U	V	W	X
7 SQ		6 DIA		5/8	3-1/8	-	1-1/2	3-1/8	1-1/2	12	7/16	8-3/4	10	6
10-1/2 SQ		6-1/2	10	3/4	3-5/8	-	3-5/8	3-5/8	3-5/8	16	9/16	3	1-3/4	14
10-1/2	18-1/2	6-1/2	18	3/4	3-3/4	3-3/4	3-3/4	3-5/8	3-5/8	20	9/16	3	1-3/4	18
8	16	10	17-3/8	1	1	4	1-11/16	5/8	3	8	9/16	3-1/2	-	8

SIZE	DIMENSIONS IN INCHES				TOP FLG.		BOTT. FLG.	
	A	B	C	D	E	F	G	H
8” SUCTION W/DRIVE	9-1/2	15-7/16	9-1/2	8-7/8	7	7	6 DIA.	
10” SUCTION W/DRIVE	11-7/8	17-13/16	12-5/8	11-3/4	10-1/2	10-1/2	6-1/2	10
10” x 18” SUCTION W/DRIVE	12-9/16	19	16-1/4	15-3/4	10-1/2	18-1/2	6-1/2	18
15” SUCTION W/DRIVE	15-5/8	22-3/8	18-3/8	17-1/4	8	16	10	17-3/8

All dimensions in inches

APPLICATION: The FLSmidth Rotary Cut-Off Valve provides positive cutoff for unrestricted flow of pulverized materials from storage containers.

SPECIFICATION:

General

The FLSmidth Rotary Cut-Off Valve is designed for high operating efficiency and long life. Constructed of rugged cast iron, the valve is precisely machined to maintain alignment and assure smooth rotor operation. Standard design to operate with material temperatures up to 200° F (93° C).

Body

Rugged cast iron construction machined for close tolerance.

Rotor

Unique rotor design provides double seal, at top and bottom, in the closed position for positive cut-off.

Operation

Three methods of operation are available for the rotary cutoff valves:

a. Manual. Manually operated valve includes machined cast iron valve with steel manually-operated lever with positive stop.

b Air operated. The air operated valve includes machined cast iron valve completely assembled with air cylinder operator, single solenoid control and one limit switch SPDT, closed position, complete with guard. Electrical requirements: single phase, 115, 230, 460 volt AC, 60 Hz. 50 to 100 psig clean plant air required.

c. Motor operated. Motor-operated valve includes cast iron valve completely assembled with right angle combination gear motor with brake and two limit switches complete with guard. Electrical requirements: 3 phase, 230/460 volts AC, 60 Hz.

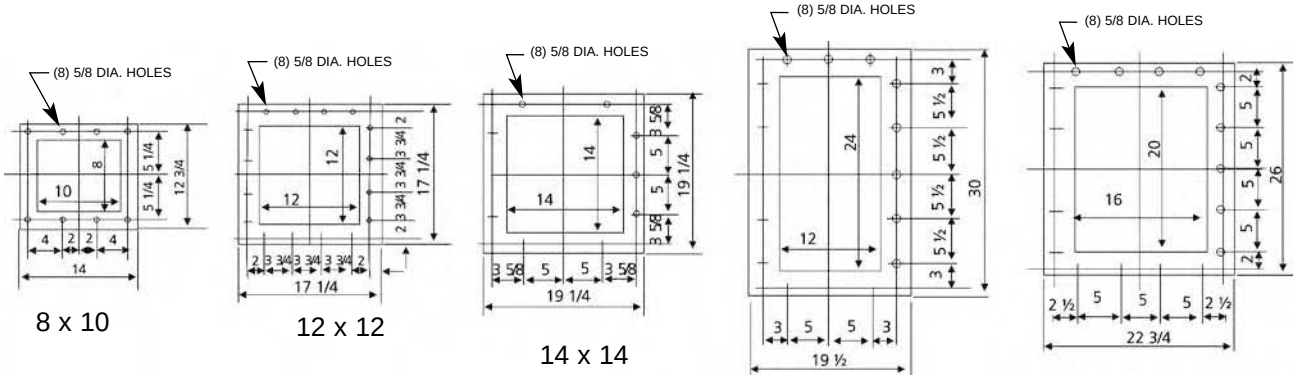
Special Order Options

Limit switches for manual operation. Explosive-proof motor, brake and switches. Air-operated with double solenoid valve and two open-and-closed limit switches, special voltages, temperature designs to 400° F (204° C), V-notch rotors, air operated positioners.

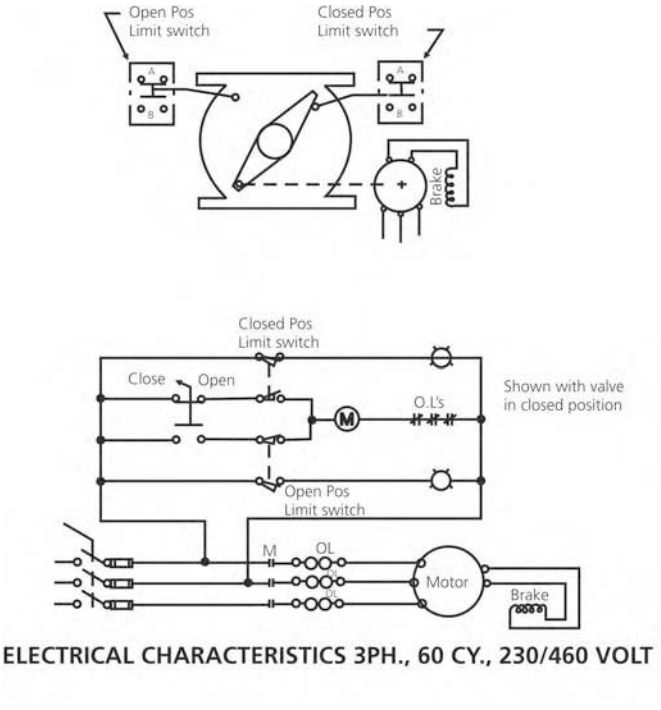
A. Manual	
Size (inches)	**Part Number**
8 x 10	116-72-4-1024-00
12 x 12	116-72-4-1021-00
14 x 14	116-72-4-1022-00
12 x 24	116-72-4-1023-00
16 x 20	116-72-4-1025-00

B. Air-Operated (specify 115, 230 or 460 Volts AC, 60 Hz.)	
Size (inches)	**Part Number**
8 x 10	116-72-4-1039-04
12 x 12	116-72-4-1036-04
14 x 14	116-72-4-1037-04
12 x 24	116-72-4-1038-04
16 x 20	116-72-4-1040-04

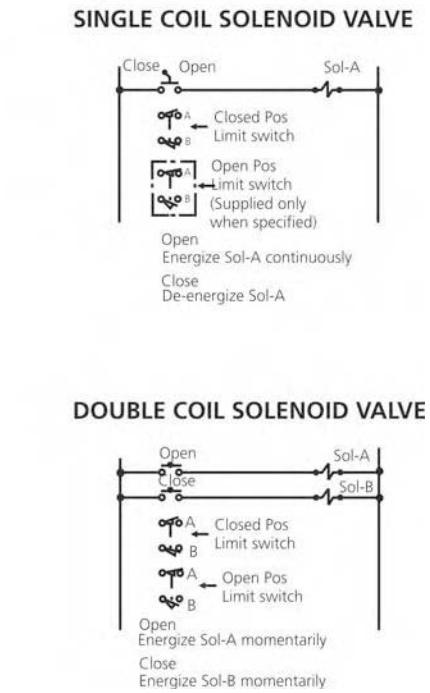
C. Electric Motor		
Size (inches)	**Part Number (RH)**	**Part Number (LH)**
8 x 10	116-78-4-1006-00	116-78-4-1008-00
12 x 12	116-78-4-1005-00	116-78-4-1009-00
14 x 14	116-78-4-1004-00	116-78-4-1010-00
12 x 24	116-78-4-1003-00	116-78-4-1011-00
16 x 20	116-78-4-1007-00	116-78-4-1012-00



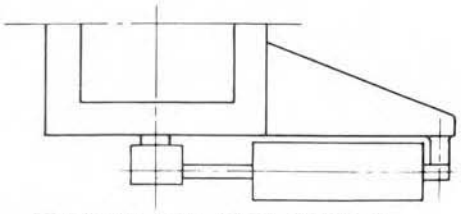
TOP AND BOTTOM FLANGES IDENTICAL



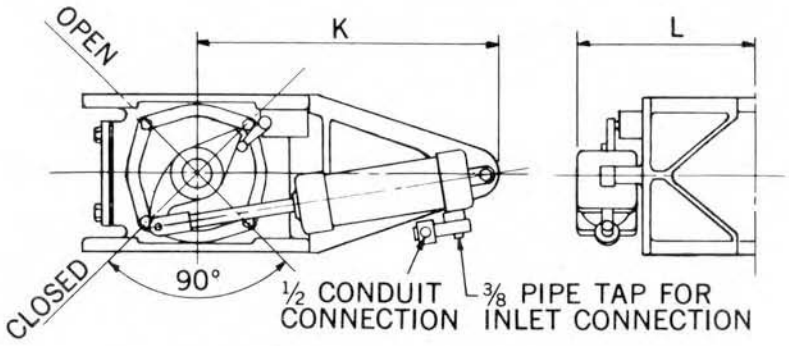
ELECTRIC MOTOR OPERATION



AIR CYLINDER OPERATION

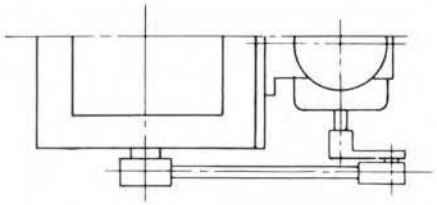


TYPICAL ALL SIZE VALVES
RIGHT HAND OPERATION

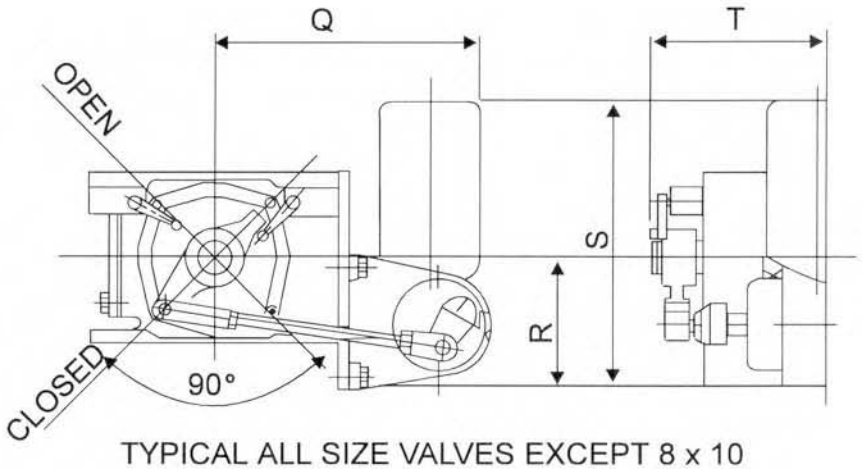


TYPICAL ALL SIZE VALVES EXCEPT 8 x 10

Air Cylinder Operation

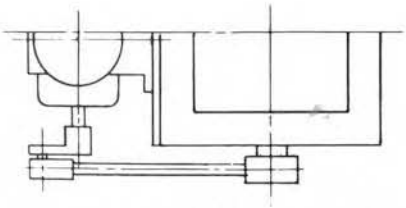


TYPICAL ALL SIZE VALVES
RIGHT HAND OPERATION



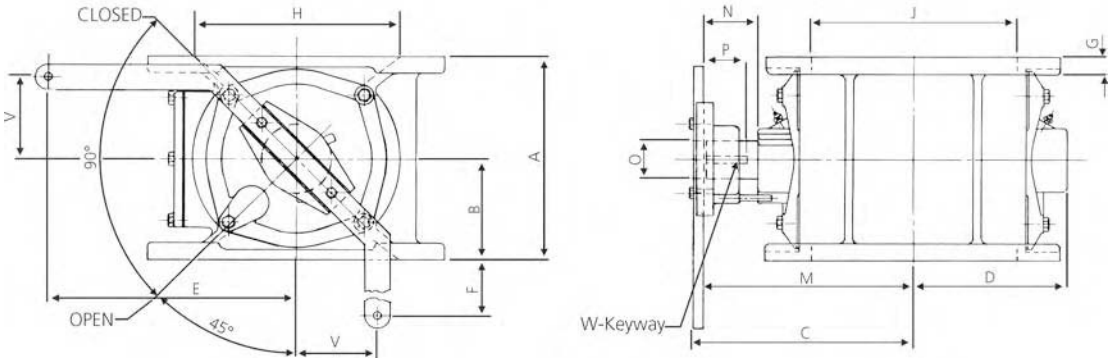
TYPICAL ALL SIZE VALVES EXCEPT 8 x 10

ELECTRIC MOTOR OPERATION



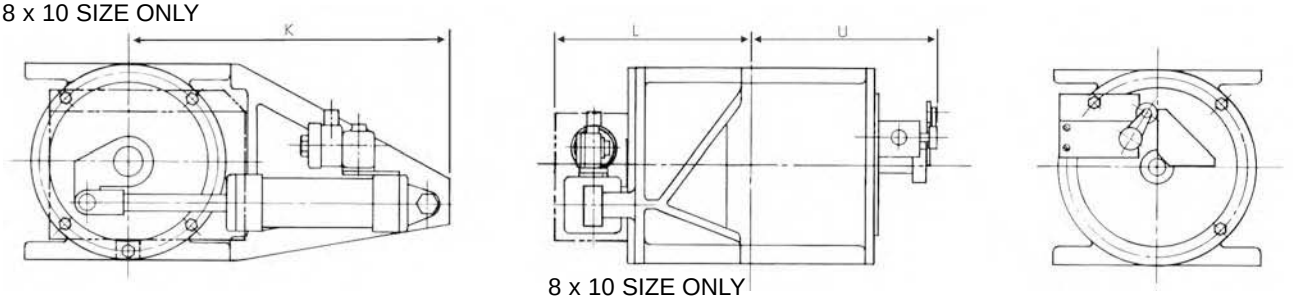
TYPICAL ALL SIZE VALVES
LEFT HAND OPERATION

DISCHARGE VALVE ROTARY CUT-OFF VALVE



Hand Operation

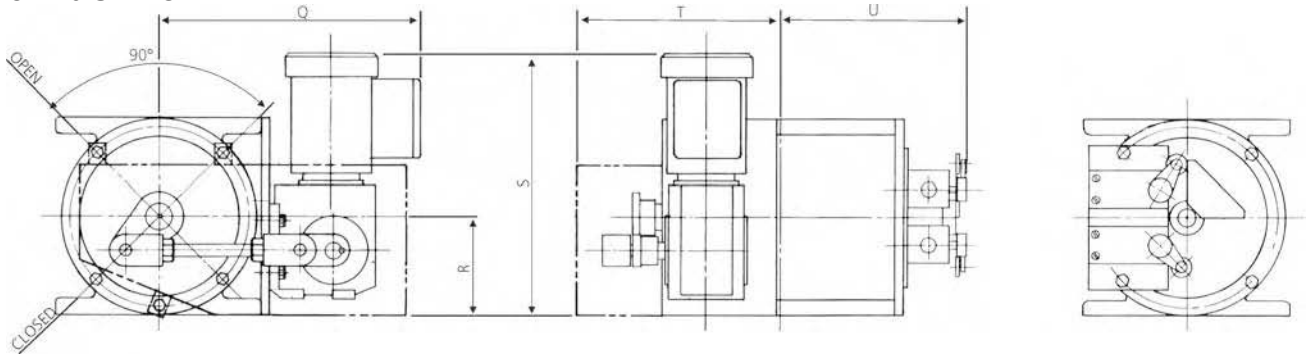
8 x 10 SIZE ONLY



8 x 10 SIZE ONLY

Air Cylinder

8 x 10 SIZE ONLY

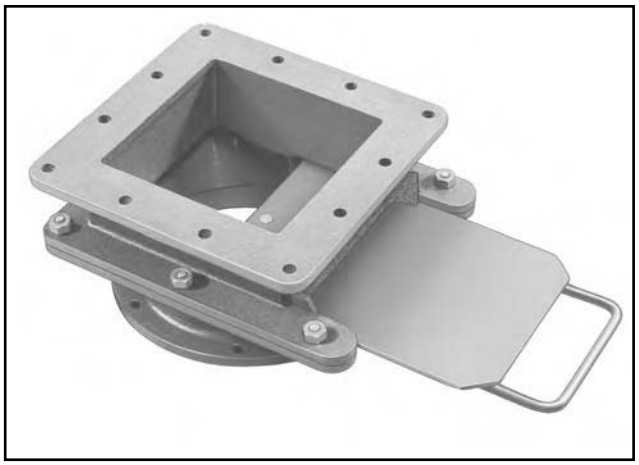


SIZE IN IN.	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	WEIGHT LB. OPERATION HAND	WEIGHT LB. OPERATION ELECTRIC MOTOR	WEIGHT LB. OPERATION AIR CYLINDER	CAPACITY CUBIC FT. PER HOUR
8x10	12	6	9-3/4	7-1/2	14-3/4	8-3/4	1	8	10	19-1/2	11-3/8	9-7/8	1-3/4	1-15/16	1-1/2	13-5/8	6	20	11-5/8	10-3/8	5-3/32	1/4x1/8	265	350	345	3000
12x12	12	6	12-3/4	9	14-3/4	8-3/4	1	12	12	23-1/16	13-5/8	12-1/8	3-1/8	2-1/4	2	16	8	19-1/2	12-1/4	-	5-3/32	7/16x7/32	300	375	400	4000
14x14	14-1/2	7-1/4	13-5/8	10	14-3/4	7-1/2	1	14	14	23-1/16	14-3/4	13	3	2-11/16	2-3/4	17-1/8	9-1/4	19-1/2	13-3/8	-	5-3/32	5/8x5/16	450	525	575	7000
12x24	14-1/2	7-1/4	19-1/8	15-1/8	14-3/4	7-1/2	1	12	24	23-1/16	20-1/8	18-1/2	3-3/8	2-11/16	2-3/4	18-1/2	9-5/8	21-11/16	18-1/2	-	5-3/32	5/8x5/16	650	775	800	16000
16x20	23	11-1/2	17-1/8	13-1/8	14-3/4	3-1/4	1	16	20	33-1/8	17-1/8	16-1/2	3-1/2	2-11/16	2-3/8	20-1/16	11-1/2	24	16-1/2	-	5-3/32	5/8x5/16	950	1100	1100	30000

DISCHARGE VALVE SLIDE GATE (MANUAL)

APPLICATION:

The FLSmidth slide gate is a simple, economical, easy-to-install discharge valve commonly used dust collection equipment when only periodic clean-out is required.



SPECIFICATION:

General

The standard FLSmidth slide gate employs a grip handle for manual operation of the gate. Good for applications up to 400° F (205° C).

Body

The body of the 7-inch (175 mm) and 10 x 16 inch (250 x 400 mm) units is a two-piece cast iron assembly. The 10-inch (250 mm) unit is fabricated steel. A gasket at the gate aperture maintains a seal. The upper body over-laps the perimeter of the gate which is supported by lugs on the lower wall. This gives the unit a “self-cleaning” feature with no ledges or pockets to trap dust.

Gate

The gate is constructed of sturdy plate steel.

ORDER DATA:

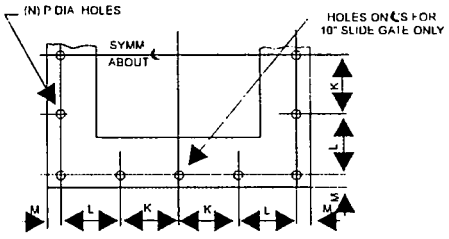
Specify quantity, description, size and part number.

DESCRIPTION: SLIDE GATE (MANUAL)

Size (Inches)	Part No.
7 sq	304-64-4-0050-00
10 sq.	304-64-4-0067-00
10 x 16	304-64-4-0149-02

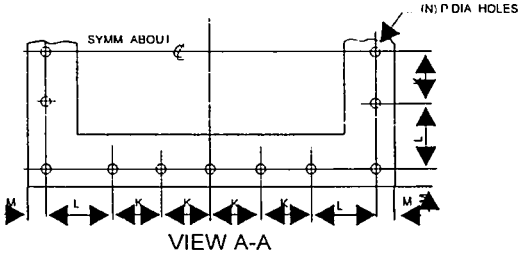
SIZE	HEIGHT	TOP FLANGE				BOTTOM FLANGE				DIMENSIONS								WT. (LBS.)
		INSIDE		OUTSIDE		INSIDE		OUTSIDE										
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	
7”	5-7/8”	7” SQ.		10-1/2” SQ.		7” DIA.		9-1/2” DIA.		1-1/2”	3-1/8”	5/8”	12	7/16”	__	__	__	30
10”	4-1/4”	10” SQ.		16” SQ.		10-1/2” SQ.		16” SQ.		3-5/8”	3-5/8”	3/4”	16	3/16”	__	__	__	40
10” X 16”	4-3/4”	10”	16”	16”	22”	10”	17”	13-1/2”	23”	3”	4”	1”	20	9/16”	1-1/2”	3/4”	2”	150

DISCHARGE VALVE SLIDE GATE (MANUAL)



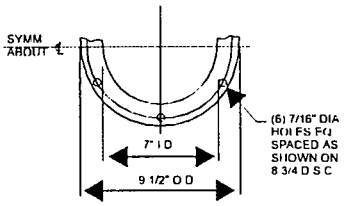
VIEW A-A

TOP FLANGE - 7" & 10" SLIDE GATE



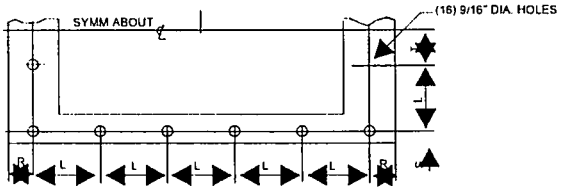
VIEW A-A

TOP FLANGE - 10" x 16" SLIDE GATE



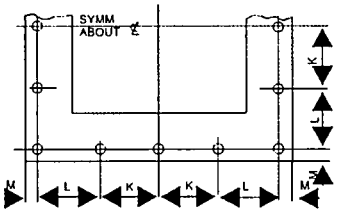
VIEW B-B

BOTTOM FLANGE - 7" SLIDE GATE



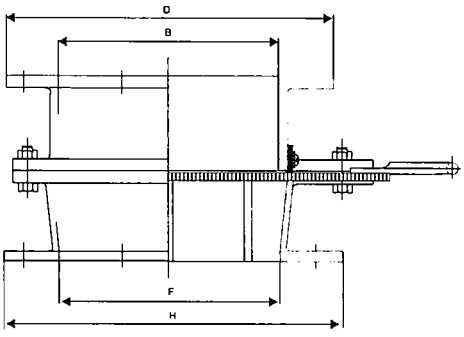
VIEW B-B

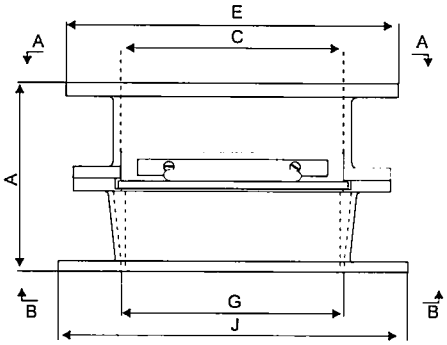
BOTTOM FLANGE - 10" x 16" SLIDE GATE



VIEW B-B

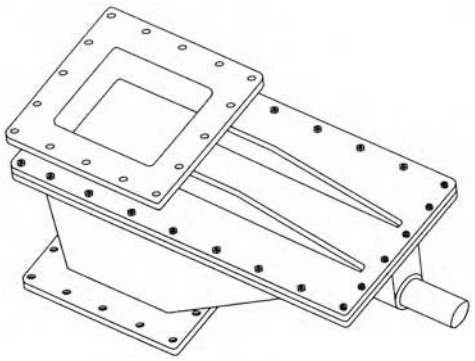
BOTTOM FLANGE - 10" SLIDE GATE





DISCHARGE VALVE CUT-OFF SLIDE GATE

APPLICATION:



FLSmidth Cut-Off Slide Gates are applied to bin outlets and spouts to provide positive cut-off or unrestricted flow of dry, pulverized materials. They are available in a full range of sizes, with manual, air cylinder, or electric motor operation and of cast iron, aluminum or stainless steel construction.

Rugged construction and precise machining assure proper alignment and free movement of the slide from full-open to full-closed positions. The body design is such that the slide is completely enclosed throughout the full stroke, and supported by uniquely designed lugs, there by providing a dust-free, non-sticking, self-cleaning operation. These units can also be used to meter free-flowing materials by utilizing slide position(s) other than full open.

SPECIFICATION:

General

The FLSmidth Cut-Off Slide Gate is available for four different modes of operation to meet specific control situations:

a. hand wheel operated
b. chain wheel operated
c. electric motor operated
d. air cylinder operated

Each type is equipped with adjustable limit switches. Except for the air cylinder operation, the units use a rack and pinion for gate movement. The #304 stainless steel gate shaft is sealed within the body using an asbestos Teflon® impregnated packing.

Construction

Three different material combinations are available for greater economy in selection and for specific handling requirements.

a. Class #40 cast iron body with carbon steel gate
b. Cast #319 aluminum body with #304 stainless steel gate
c. Complete #304 stainless steel body and gate

Body

The body is solid, cast metal, two-piece bolted construction for ease of servicing. Machined for close fit. Integral cast shelf relief cuts provide a self-cleaning feature permitting smoother slide-through and support for the gate across the entire plane of travel.

Control Devices

The hand wheel and chain wheel operated units use wheel mounted externally of the body valve and supports.

For motor operation, a one-third (1/3) HP, 25 rpm, TENV right angle gearmotor with a unibrake is mounted on the supports. Gearmotors are 230/460 Volt, 60 Hz AC.

For air cylinder operation, the cylinder complete with slide valve and solenoids for 120 V, 60 Hz AC electrical supply is similarly mounted.

ORDER DATA:

Specify quantity, description, size and part number.

DESCRIPTION: FLSMIDTH CUT-OFF SLIDE GATE

A. HAND WHEEL OPERATED

SIZE (Inches)	CAST IRON Part Number	ALUMINUM Part Number	STAINLESS STEEL Part Number
5 x 5	101-73-4-1017-00	101-73-4-1017-01	101-73-4-1017-02
8 x 8	101-73-4-1026-00	101-73-4-1026-01	101-73-4-1026-02
10 x 10	101-73-4-1010-00	101-73-4-1010-02	101-73-4-1010-01
12 x 12	101-73-4-1015-00	101-73-4-1015-01	101-73-4-1015-02

B. CHAIN WHEEL OPERATED

5 x 5	101-73-4-1021-00	101-73-4-1021-01	101-73-4-1021-02
8 x 8	101-73-4-1023-00	101-73-4-1023-01	101-73-4-1023-02
10 x 10	101-73-4-1008-00	101-73-4-1008-02	101-73-4-1008-01
12 x 12	101-73-4-1014-00	101-73-4-1014-02	101-73-4-1014-01

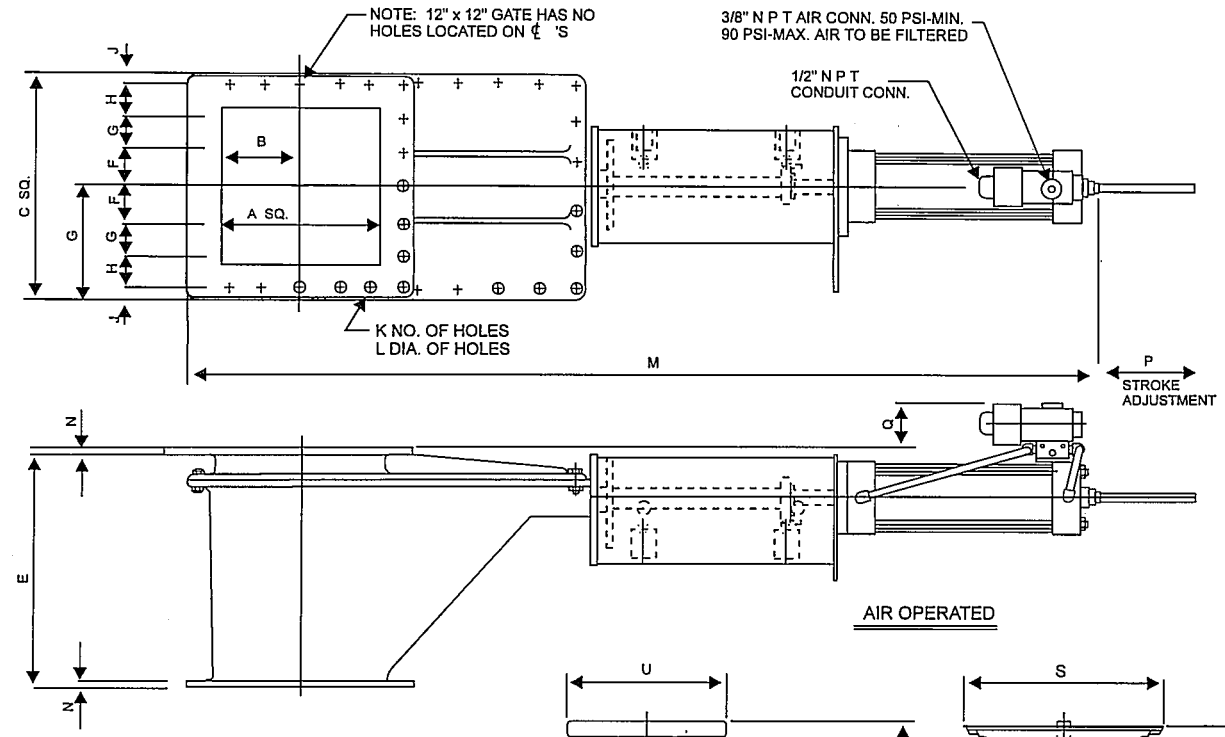
C. MOTOR OPERATED

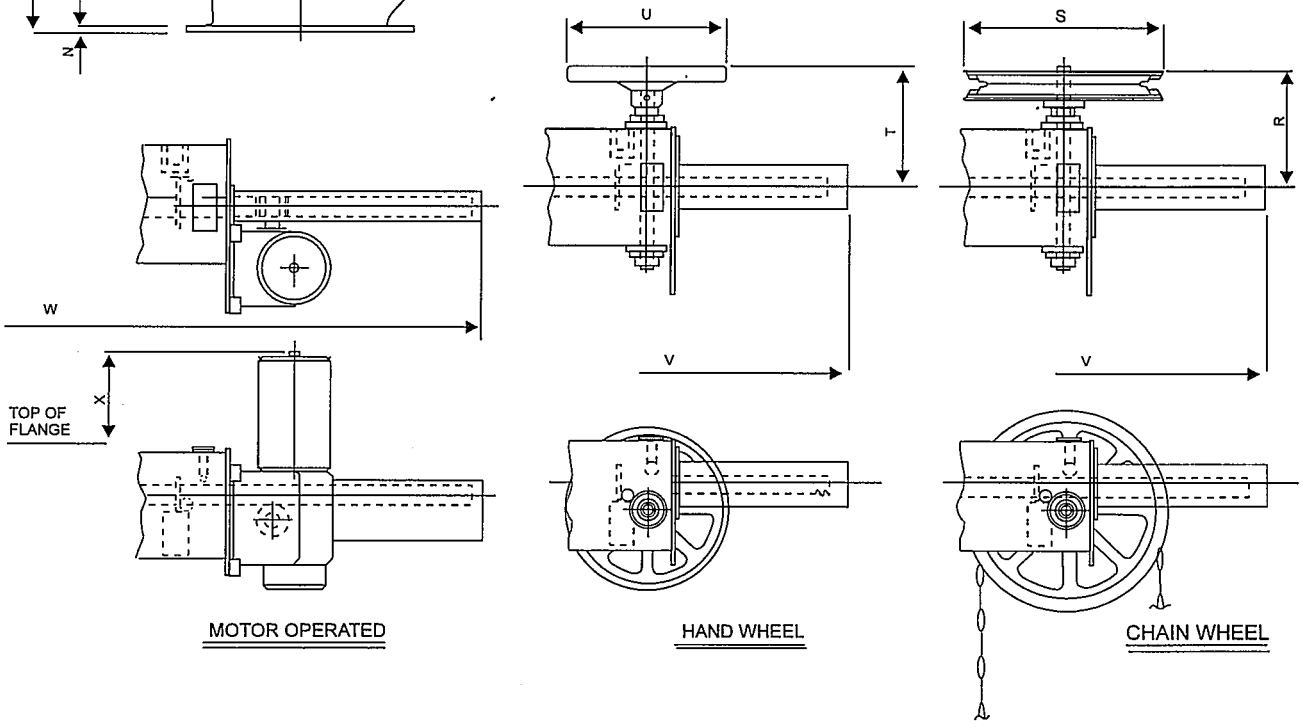
5 x 5	101-73-4-1020-00	101-73-4-1020-01	101-73-4-1020-02
8 x 8	101-73-4-1025-00	101-73-4-1025-01	101-73-4-1025-02
10 x 10	101-73-4-1011-00	101-73-4-1011-02	101-73-4-1011-01
12 x 12	101-73-4-1016-00	101-73-4-1016-02	101-73-4-1016-01

D. AIR OPERATED

5 x 5	101-73-4-1018-00	101-73-4-1018-01	101-73-4-1018-02
8 x 8	101-73-4-1024-00	101-73-4-1024-01	101-73-4-1024-02
10 x 10	101-73-4-1007-00	101-73-4-1007-02	101-73-4-1007-01
12 x 12	101-73-4-1013-00	101-73-4-1013-02	101-73-4-1013-01

DISCHARGE VALVE CUT-OFF SLIDE GATE





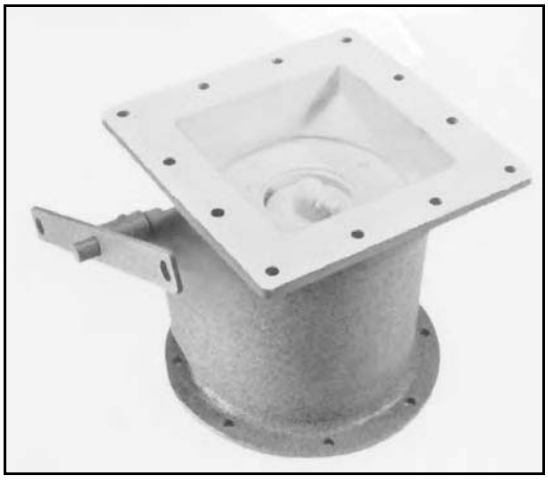
GATE SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U	V	W	X
5" x 5"	5	2-1/2	9-1/8	4-9/16	8-1/4	3-15/16	__	__	5/8	8	9/16	36-5/8	3/8	5	2-1/2	7-1/4	9-1/2	8-3/8	10	31-1/4	35-3/4	6-1/8
8" x 8"	8	4	12-1/2	6-1/4	11-1/2	2-13/16	2-13/16	__	5/8	16	9/16	49	3/8	8	2	7-1/4	9-1/2	8-3/8	10	44	48-1/2	5-5/8
10" x 10"	10	5	14-1/8	7-1/16	15	3-3/16	3-1/4	__	5/8	16	9/16	57-3/8	7/16	10	2-1/2	7-3/8	12-1/2	8-3/8	12	52-3/8	55-7/8	9-7/8
12" x 12"	12	6	16-1/2	8-1/4	20	1-5/8	3	3	5/8	20	9/16	66-1/4	9/16	12	1-1/8	7-3/8	12-1/2	8-3/8	12	30-3/4	64-3/4	5-5/8

ALL DIMENSIONS ARE IN INCHES. TOP & BOTTOM FLANGE ARE IDENTICAL

DISCHARGE VALVE SWING GATE

APPLICATION:

The FLSmidth Swing Gate is simple, easy-to-install, air tight discharge valve commonly used with dust collection equipment when frequent clean-out is not required.



SPECIFICATION:

General

The FLSmidth Swing Gate is a manually operated, self-locking discharge valve. in an open position it presents minimum obstruction to dust discharge flow. This gate features a post-center toggle locking device.

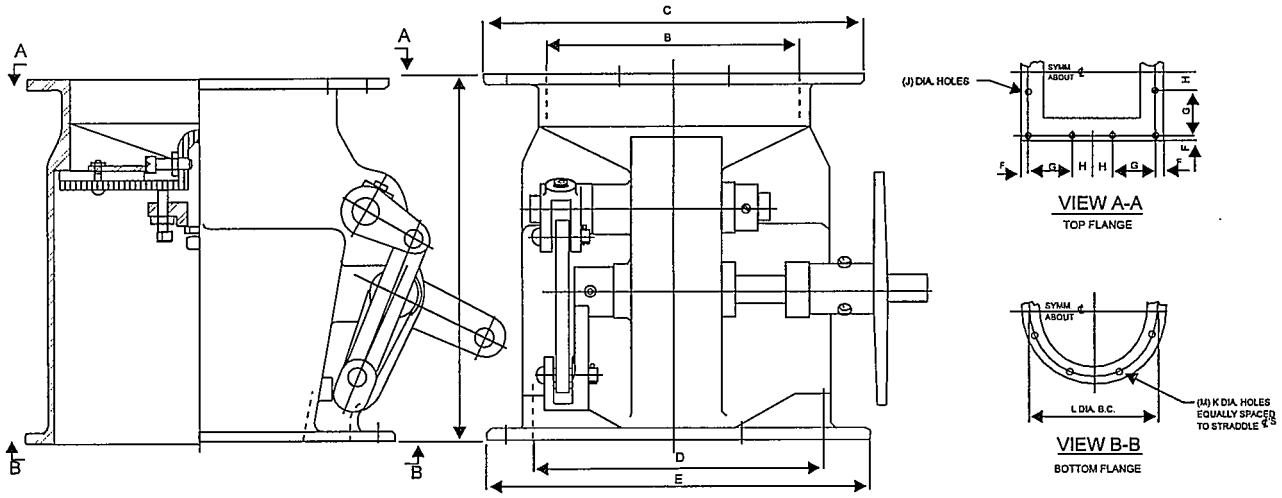
Body

The body is a single, cast iron unit that is designed to create an airtight seal with the swing-gate seal.

Gate

The Swing Gate is mechanically tensioned against the body valve seat using a gasket. Rubber gasket permits use up to 250° F (121° C). Special silicone seal gasket extends operating range up to 400° F (205° C).

ORDER DATA:

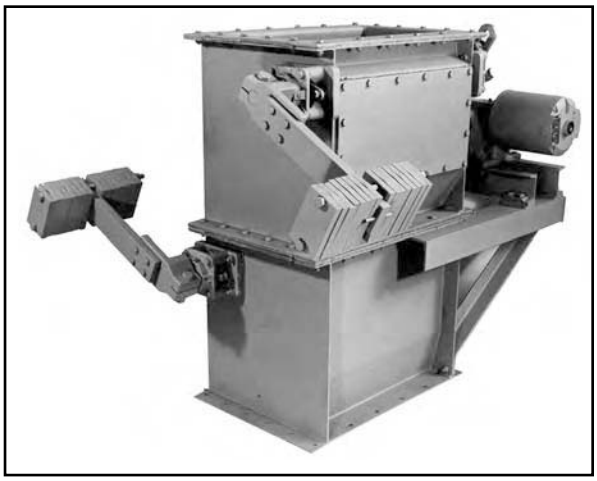


SIZE	HEIGHT	TOP FLANGE		BOTTOM FLANGE		DIMENSIONS (INCHES)							WT. (LBS.)
		INSIDE	OUTSIDE	INSIDE	OUTSIDE								
	A	B	C	D	E	F	G	H	J	K	L	M	
8”	10”	7” SQ.	10 1/2” SQ.	8” DIA.	10 1/2” DIA.	5/8”	3 1/8”	1 1/2”	12	7/16”	9 1/2”	8	60

DISCHARGE VALVE TWO-GATE (MOTOR-OPERATED) VALVE

APPLICATION:

The FLSmidth Two-Gate Valve is a two-gate, non-jamming, power-opened, gravity-closed discharge valve driven by a gear motor. Commonly used with dust collection equipment feeding into mechanical conveying systems.



SPECIFICATION:

General

The FLSmidth Two-Gate Valve provides a dual-gate airlock seal against a differential pressure up to 17" W.G.and will withstand material temperatures up to 400° F (205° C). For material temperatures to 700° F (371° C). special motors and heat shields can be provided at extra cost.

Body

The valve body is constructed of seven (7) gauge fabricated steel plate. Inspection plate cover permits easy service access.

Gates

The FLSmidth Two-Gate Valve has two (2) sealing gates which alternately open and closes as material passes through the unit in order to maintain a seal between material inlet and outlet. The alternating cycle is mechanically operated using an eccentric and gear motor arrangement. Simple gravity release produces non-jamming return operation. Steel gates are mounted on a finished shaft rotating freely on outboard self-aligning ball bearings.

Motor Gear motors are TEFC, 3 phase, 230/460 Volt AC, 60 Hz.

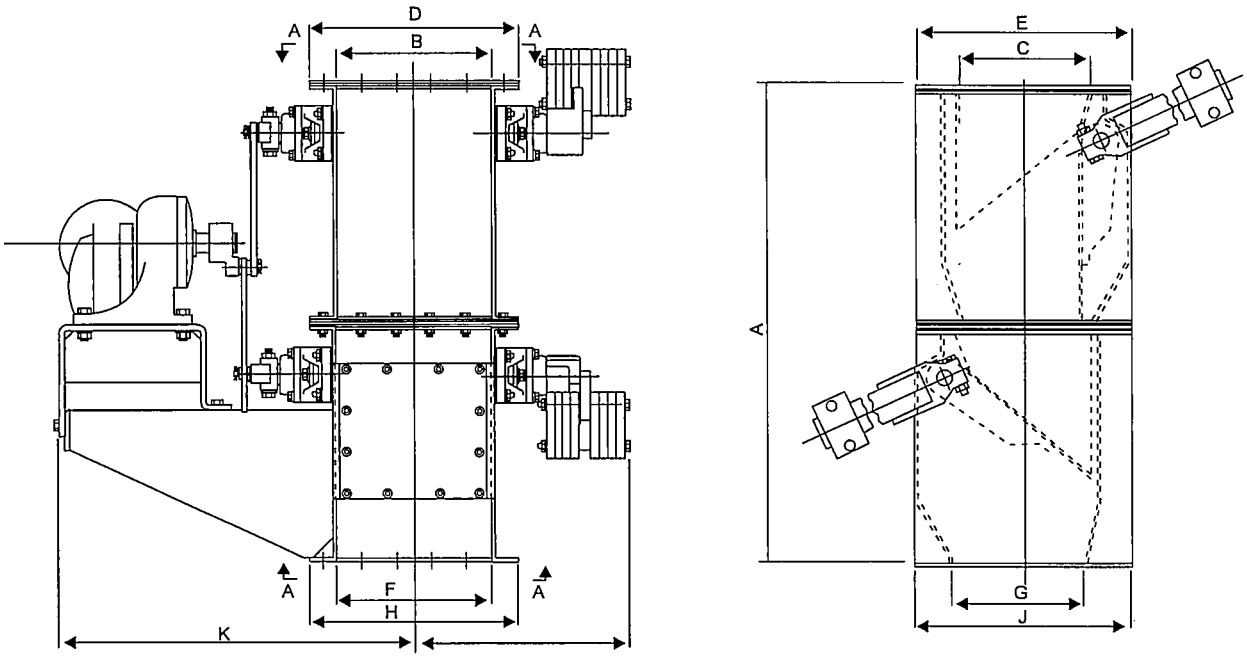
ORDER DATA:

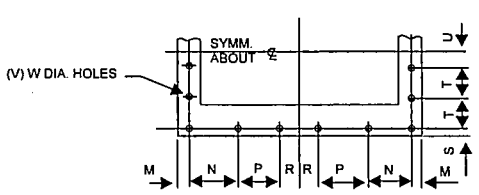
Specify quantity, description, size and part number.

DESCRIPTION: TWO-GATE VALVE

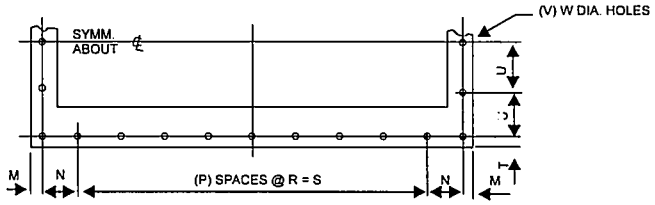
Size (Inches)	CFM	Motor HP	Motor Operated Part No.	Gravity Operated P/N
9 x 9	5	1/2	305-72-5-0003-00	303-85-4-0330-00
9 x 17	9	1/2	305-74-4-0003-00	303-76-4-0313-00
9 x 17	14	1	305-70-5-0009-00	
12 x 36	33	3	305-73-4-0003-00	305-78-4-00-6-00

DISCHARGE VALVE TWO-GATE (MOTOR-OPERATED) VALVE





VIEW A-A
TOP & BOTTOM FLANGE
9x9 & 9x17 TWO-GATE VALVE



VIEW A-A
TOP & BOTTOM FLANGE
12x36 TWO-GATE VALVE

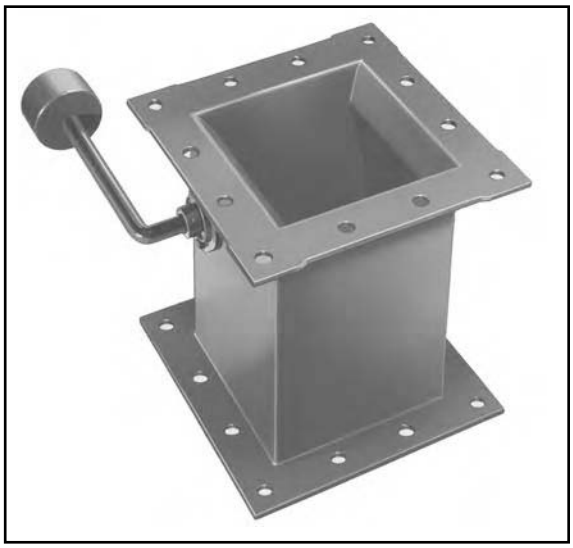
SIZE	CU. FT./ MIN CAPACITY	WT. (LBS.)	GEAR MTR. HP.	HEIGHT	TOP FLANGE				BOTTOM FLANGE				DIMENSIONS										
					INSIDE		OUTSIDE		INSIDE		OUTSIDE												
				A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	U	V	W
9 X 9	5.5	500	1/2	3'-0 1/8"	11"	10"	16 1/4"	16 1/2"	12"	10"	16 1/4"	16 1/2"	2'-2 1/16"	16 1/2"	1 1/8"	5"	-	2"	3/4"	3"	1 1/2"	16	7/16"
9 X 17	14	620	1	3'-0 1/8"	19"	10"	2 11/4"	16 1/2"	20"	10"	2'-1/4"	16 1/2"	2'-6 1/16"	23"	1 1/8"	5"	4"	2"	3/4"	3"	1 1/2"	10	7/16"
9 X 17	9	550	1/2	3'-0 1/8"	19"	10"	2 11/4"	16 1/2"	20"	10"	2'-1/4"	16 1/2"	2'-6 1/16"	23"	1 1/8"	5"	4"	2"	3/4"	3"	1 1/2"	10	7/16"
12 X 36	30	2400	3	3'-0 1/8"	3'-1"	13"	3'-8"	21"	3'-3"	13"	3'-8"	21"	4'-4 1/4"	2'-5 7/16"	1	3 1/2"	8"	4 3/8"	2'-11"	1"	4 3/4"	18	7/16"

Dimensions in inches

DISCHARGE VALVE TRICKLE VALVE

APPLICATION:

The FLSmidth Trickle Valve is a simple, easy-to-install, gravity-operated discharge valve commonly used with dust collection equipment when continuous—automatic discharge is desirable.



SPECIFICATION:

General

The FLSmidth Trickle Valve is an adjustable, counter-weight discharge valve which automatically responds to flap gate imbalance by releasing collected material. Good for applications up to 400° F (205° C).

Body

The body is durable twelve (12) gauge steel plate construction. Simple design presents minimum material restriction.

Gate

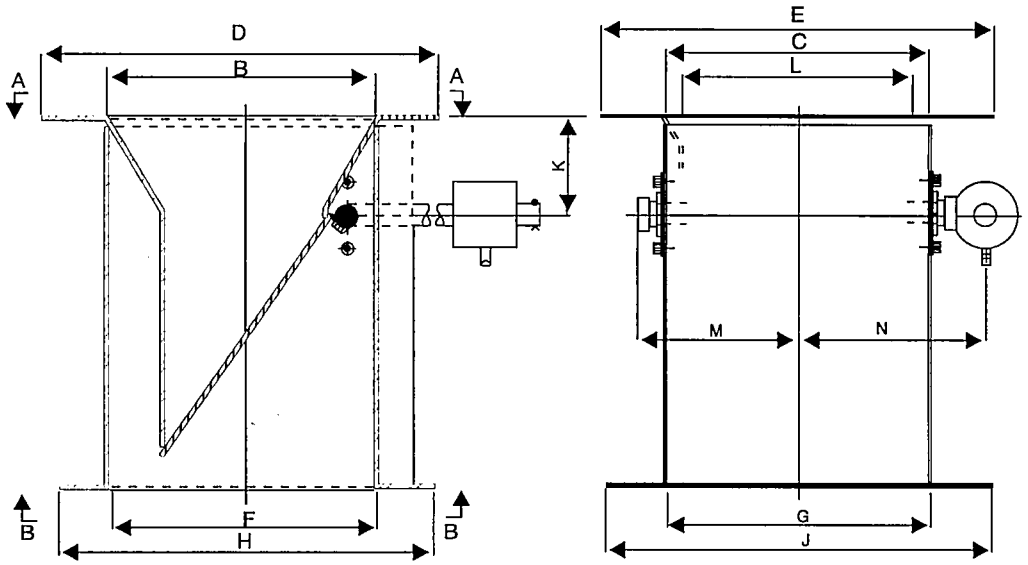
Constructed of steel plate, the flap gate is gravity-operated with an adjustable counterweight. The flap gate is mounted on a finished shaft and rotates freely on outboard, self-aligning ball bearings.

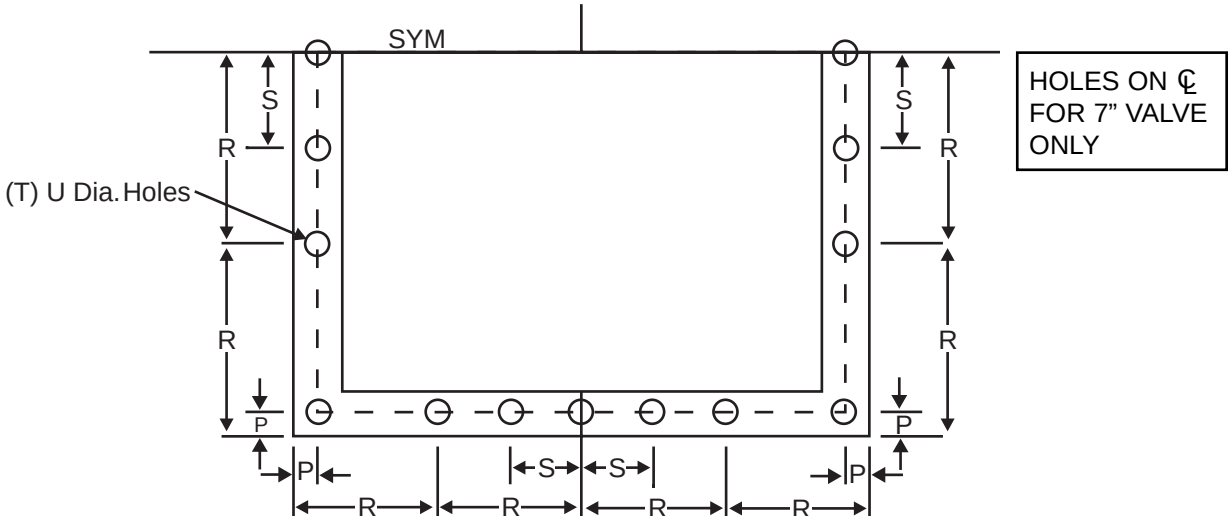
ORDER DATA:

Specify quantity, description, size and part number.

DESCRIPTION: TRICKLE VALVE			
Size (Inches)	**Single Part No.**	**Double Tip Valve Part No.**	**Capacity CFH**
7	303-64-4-0117-00	304-74-2-0304	480
10	303-64-4-0155-00	303-73-2-0309	960
12	303-67-4-0038-00	303-76-3-0311	1680
24	303-78-4-0301-00	PDB # 1609401	5530

DISCHARGE VALVE TRICKLE VALVE





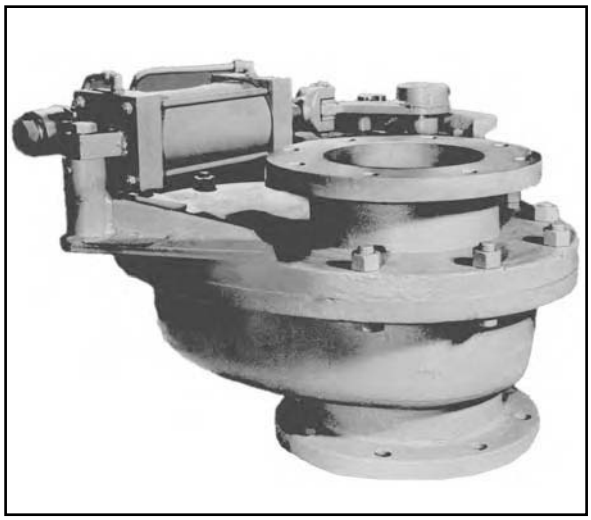
SIZE	HEIGHT	TOP FLANGE				BOTTOM FLANGE				DIMENSIONS									WT. (LBS.)
		INSIDE		OUTSIDE		INSIDE		OUTSIDE											
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	U	
7”	12”	7” SQ.		10-1/2” SQ.		7-1/4” SQ.		10-1/2” SQ.		4”	5-1/2”	5-1/8”	6-1/2”	5/8”	3-1/8”	1-1/2”	12	7/16”	27
10”	14”	10-1/4” SQ.		16” SQ.		10-1/4” SQ.		16” SQ.		4-1/2”	8-1/2”	6-3/8”	7-5/8”	3/4”	3-5/8”	-	16	9/16”	50
12”	17”	12-1/4” SQ.		17-1/4” SQ.		12-1/4” SQ.		17-1/4” SQ.		4-1/2”	10-1/2”	7-3/8”	8-5/8”	5/8”	4”	-	16	9/16”	135
24”	36”	24” SQ.		28 1/2” SQ.		24” SQ.		28 1/2” SQ.		5”	18 1/4”	13 1/2”	15 1/2”	3/4”	4 1/2”	-	24	11/16”	300

All dimensions in inches

TYPE SK

APPLICATION:

FLSmidth Type SK One-Way Cutoff Valves are designed to provide a positive cut-off and seal for pressure and vacuum pneumatic conveying lines. The valves can be used at inlet and outlet locations on conveying pressure tanks. The cut-off valve can also be used on branched systems to permit selection for line activation or to prevent short-circuiting of a conveyor by stopping airflow through an unused section. Air cylinder operated for quick, responsive cut-off.



One-way SK Cut-off Valve

SPECIFICATION:

General

The FLSmidth Type SK One-Way Cutoff Valve is available in six basic sizes. The 3 through 6-inch (75 -150 mm) valves match the I.D. of standard Schedule 40 pipe. The 8 and 10-inch (200 and 250 mm) valves match the I.D. of standard Schedule 30 pipe. Operating temperature up to 400° F (205° C).

Body

Durable machined cast iron construction.

Disc

The valves employ replaceable hardened seats and discs, ground and lapped to ensure positive sealing. Air cylinder actuator provides fast and positive cutoff operation. 50 to 100 PSIG (3.5 to 7 Kg/cm^2) clean plant air required.

Accessories

Weather-proof (NEMA 4) limit switches are included for positive indication.

Special Applications

High temperature 850° F (455° C), hand-operated, voltages.

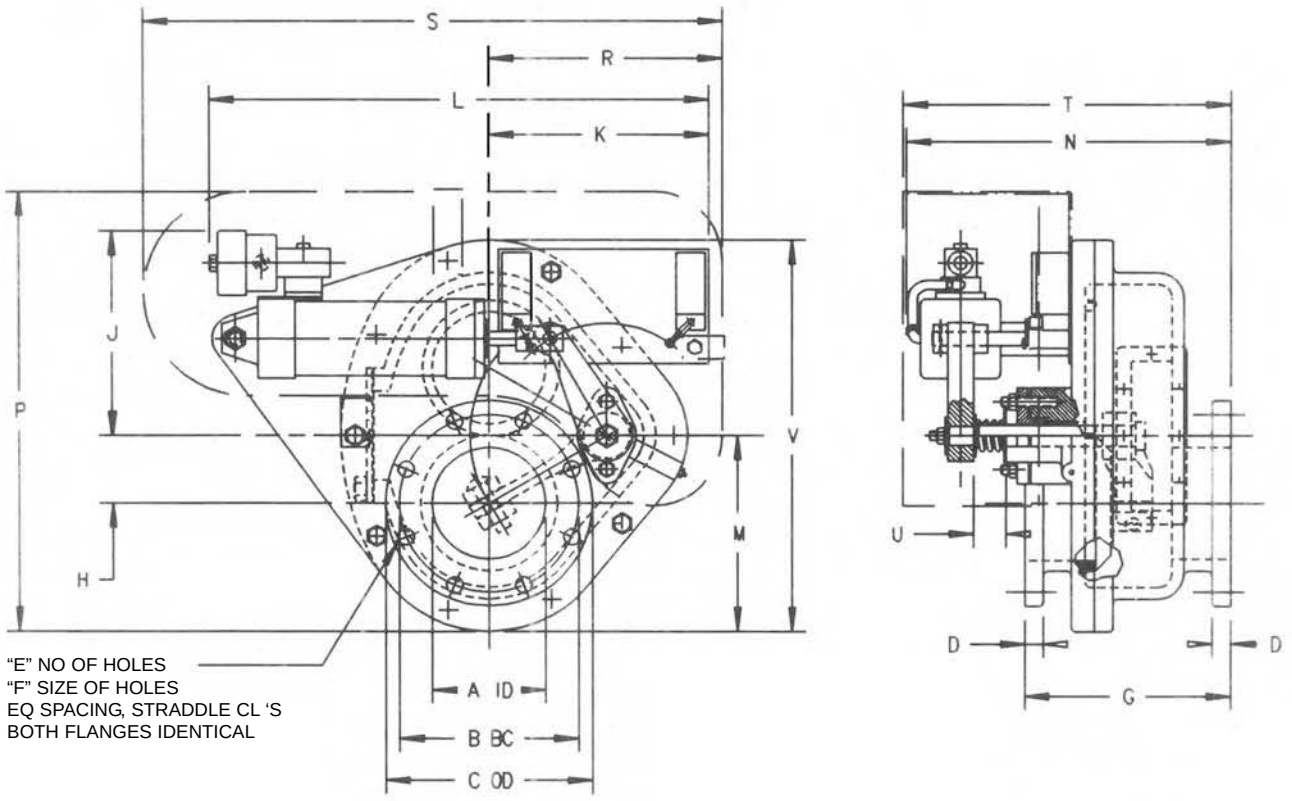
ORDER DATA:

Specify quantity, description, size and part number.

DESCRIPTION: TYPE ONE-WAY CUTOFF VALVE, air cylinder operated

Size (inches)	Part Number with Guard	Weight (lbs.)
3	116-75-4-0901-01	180
4	116-75-4-0901-11	200
5	116-75-4-0901-21	275
9	116-75-4-0901-31	325
8	116-75-4-0901-41	510
10	116-75-4-0901-51	760
12	116-75-4-0901-53	1200

TYPE “SK”

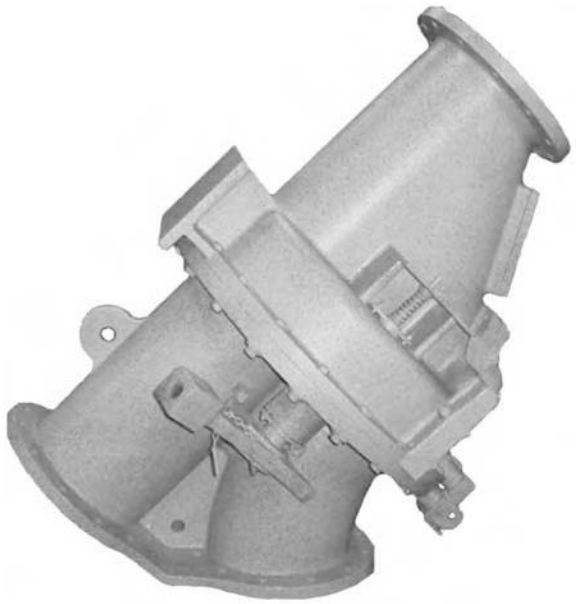


SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	U	V
3”	3”	6”	7 1/2”	1”	4”	3/4”	10”	2”	8 5/8”	8 5/8”	20 1/2”	6 5/8”	15 1/4”	17 1/4”	9 1/2”	2’-0”	15 3/4”	1 1/2”	13 1/4”
4”	4”	7 1/2”	9”	1”	8”	3/4”	10 1/2”	2 1/2”	10 5/8”	10 3/4”	22 1/2”	7 5/8”	15 5/8”	19 1/2”	11 5/8”	2’-2 3/8”	16 1/4”	1 1/2”	15 1/4”
5”	5”	8 1/2”	10”	1”	8”	7/8”	10 1/2”	3”	10 1/2”	10 1/2”	23 7/8”	9 1/8”	16 1/4”	21 3/8”	11 1/2”	2’-3 1/4”	16 3/4”	1 1/2”	18 1/4”
6”	6”	9 1/2”	11”	1”	8”	7/8”	11”	3 5/8”	11 5/8”	11 3/4”	2’ 3”	10 1/2”	16 7/8”	23 5/8”	12 1/2”	2’-7”	17 1/2”	1 1/2”	21”
8”	8”	11 3/4”	13 1/2”	1”	8”	7/8”	14”	4 5/8”	11 5/8”	13 3/8”	2’-2 7/8”	13 1/8”	19 1/4”	2’-2 1/4”	14 1/4”	2’-6”	19 3/4”	1 1/2”	2’-2 1/4”
10”	10”	14 1/4”	16”	1 1/8”	12”	1”	17 3/4”	5 5/8”	13 7/8”	16 1/8”	2’-4 7/8”	15 3/8”	23 1/2”	2’-7 1/2”	18”	2’-9 1/4”	2’-0”	2”	2’-6 3/4”
12”	12 1/4”	17”	19”	1 1/4”	12”	1”	18 3/4”	6 7/8”	15 1/8”	18 3/8”	2’-7 3/4”	17 5/8”	24 3/8”	2’-11 1/4”	19 5/16”	3’-2 11/16”	2’-1 1/2”	2”	2’-11 1/4”

TWO-WAY SK VALVE WITH REPLACEABLE SEAT

APPLICATION:

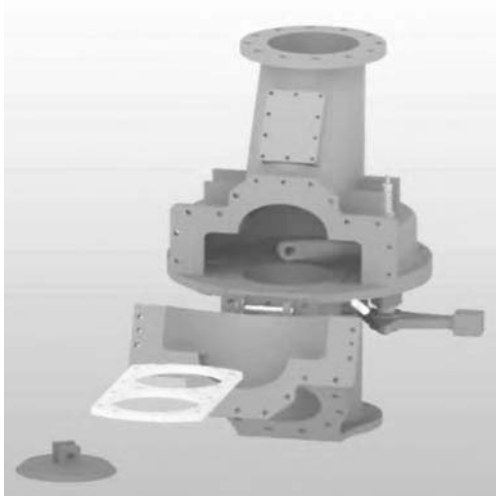
- New design is interchangeable with existing actuators
- Redesigned for servicing in place
- New larger access port designed for quick seat and disc replacements
- Hinged port
- Replaceable seat cartridge
- Replaceable disc
- O-ring sealed under cartridge
- Location pins for quick cartridge changeout
- 8”, 10”, 12” and 14”
- New design is dimensionally interchangeable with standard design



Two-way SK Valve with Replaceable Seat

SPECIFICATION:

- Hand, motor, air operators are standard
- Sizes 8” to 14”
- Left or right hand mounting
- 45° diverter leg
- Heavy cast iron construction
- 50 psi seal tested
- Standard flange drilling
- High temperatures to 850°F
- Abrasion resistant design
- Explosion proof operators
- NFPA 85f version available



Replaceable seat cartridge and disc

ORDER DATA: Specify quantity, operation, size, and PDB number.

	Hand Operated		Air Cylinder Operated *		Electric Motor Operated *		
Size	**PDB # Right**	**PDB # Left**	**PDB # Right**	**PDB # Left**	**PDB # Right**	**PDB # Left**	**HP**
8”	1254106	1254096	1100020	1115638	1073255	1077772	3/4
10”	1254109	1254098	1090626	1114341	1095130	1095117	1
12”	855958	855937	857191	857189	1614745	1615451	3
14”	983236	730405	1626068	1626063	1219159	1219157	3

* 3ph, 60hz, 230/460v ** 1ph, 50/ 60hz, 115/120v

TYPE SK

APPLICATION:

The FLSmidth Type SK Two-way Pipeline Valve provides positive and dependable switching of material flow in pressure pneumatic conveying pipelines. Numerous applications suitable for a wide variety of products such as cement, limestone, bentonite, barite, talc and other similar ground or pulverized materials. Available for manual or electric motor operation.

Two-Way SK Diverter Valve

SPECIFICATION:

General

The FLSmidth Type SK Two-way Valve is available in eight standard sizes; 3 through 6-inch (75 through 150 mm) valves match I.D. of standard pipe; 14-inch (200 through 350 match I.D. of standard Schedule 30 pipe. Available hand or left hand mounting.

Body -Durable cast iron construction.

Disc -The internal mechanism works on the sliding disc and port principle. Hardened seats and discs resist abrasion and are lapped to maintain a positive seal at the closed port.

Motor -Motor operation features a built-in mechanical brake for accurate positioning of the valve seal disc. Motor electrical requirements are 3 phase, 60 Hz., 230/460 V.

Air - Heavy-duty air cylinder actuator with dual solenoid, 120V NEMA 4, pre-piped

Accessories -Limit switches for position indication are standard on motor-operated valves; optional on manually operated valves.
Special Application -High temperature 850°F (455°C), NFPA-85F design, alternate materials, voltages.

ORDER DATA: Specify quantity, operation, size, mounting and part number.

A. MANUAL OPERATION

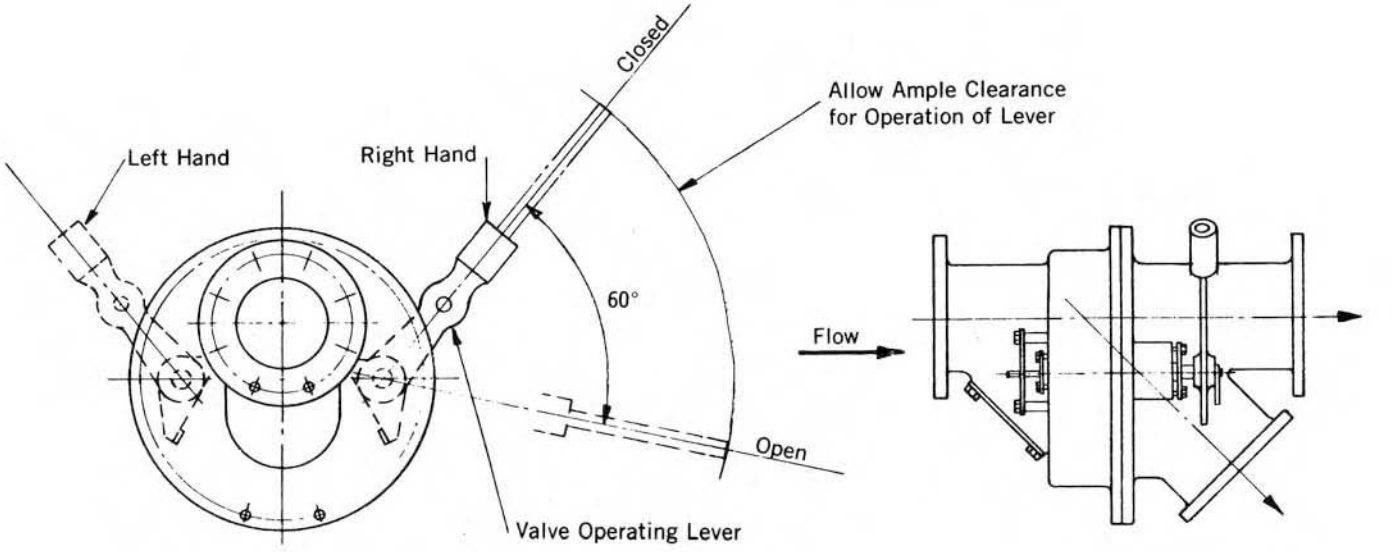
Size (Inches)	Right Hand Mounting		Left Hand Mounting		Weight
	Standard	with Limit Switch	Standard	with Limit Switch	(Lbs)
3	116-70-5-0902-00	116-70-5-0903-00	116-70-5-0902-01	116-70-5-0903-01	250
4	116-70-5-0902-02	116-70-5-0903-02	116-70-5-0902-03	116-70-5-0903-03	330
5	116-70-5-0902-04	116-70-5-0903-04	116-70-5-0902-05	116-70-5-0903-05	400
6	116-70-5-0902-06	116-70-5-0903-06	116-70-5-0902-07	116-70-5-0903-07	500
8	116-70-5-0902-08	116-70-5-0903-08	116-70-5-0902-09	116-70-5-0903-09	840
10	116-70-5-0902-10	116-70-5-0903-10	116-70-5-0902-11	116-70-5-0903-11	950
12	116-70-5-0902-12	116-70-5-0903-12	116-70-5-0902-13	116-70-5-0903-13	1400
14	116-70-5-0902-14	116-70-5-0903-14	116-70-5-0902-15	116-70-5-0903-15	2000

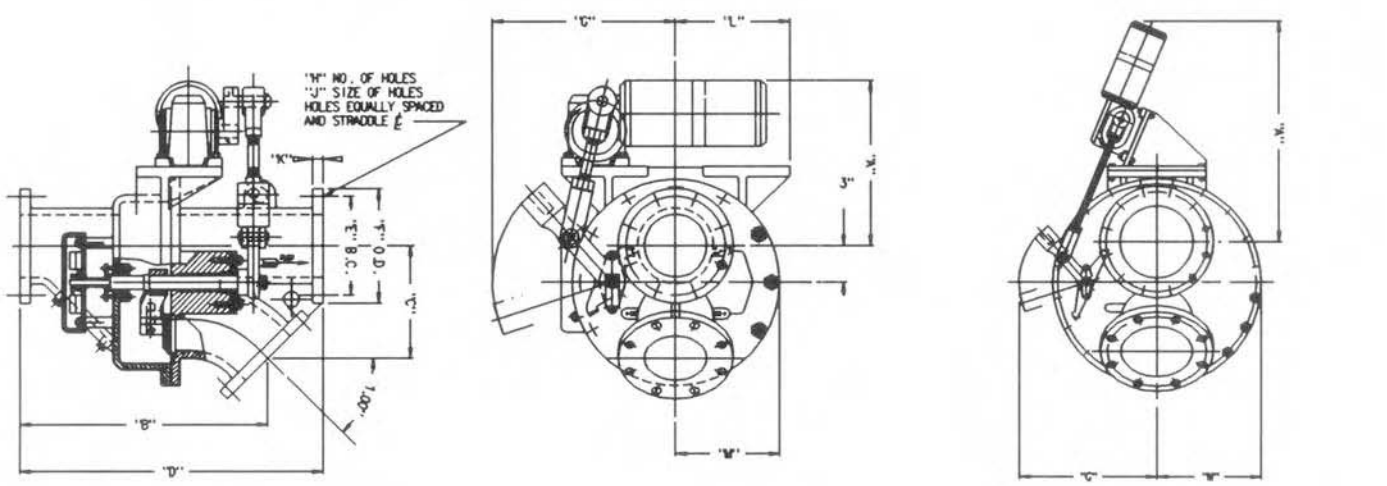
B. ELECTRIC MOTOR OPERATED

Size (Inches)	Right Hand Mounting	Left Hand Mounting	Weight
	with guard	with Guard	(Lbs)
3	116-78-4-0904-00	116-78-4-0904-01	455
4	116-78-4-0904-13	116-78-4-0904-14	480
5	116-78-4-0904-25	116-78-4-0904-26	585
6	116-78-4-0904-37	116-78-4-0904-38	710
8	116-78-4-0904-49	116-78-4-0904-50	1070
10	116-78-4-0904-61	116-78-4-0904-62	1250
12	116-78-4-0904-73	116-78-4-0904-74	1750
14	116-78-4-0904-85	116-78-4-0904-86	2410

TYPE SK

NOTE: Valve shown below is right mounting. For left hand valve mounting, operating lever is on opposite side. Looking in the direction of flow the side on which the valve lever is assembled determines the hand.



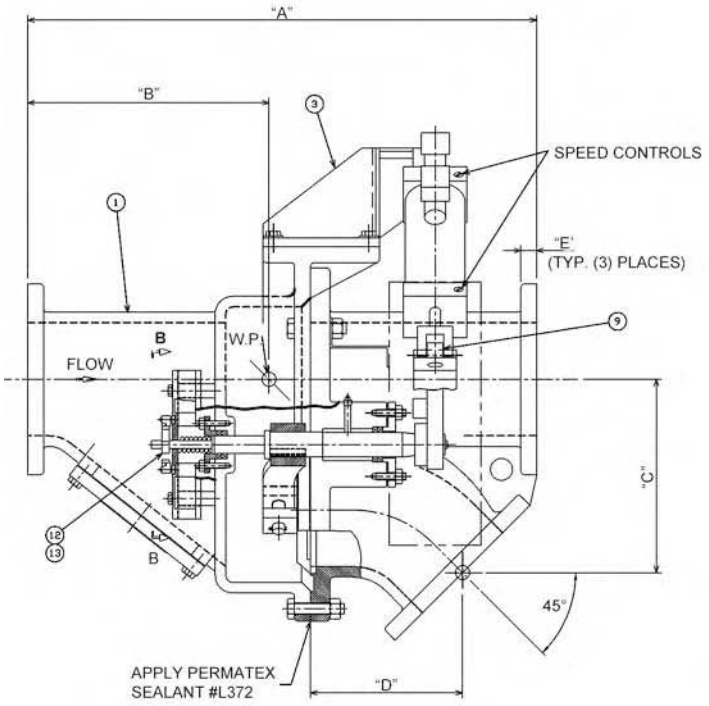


END VIEW FOR 12" & 14" VALVES

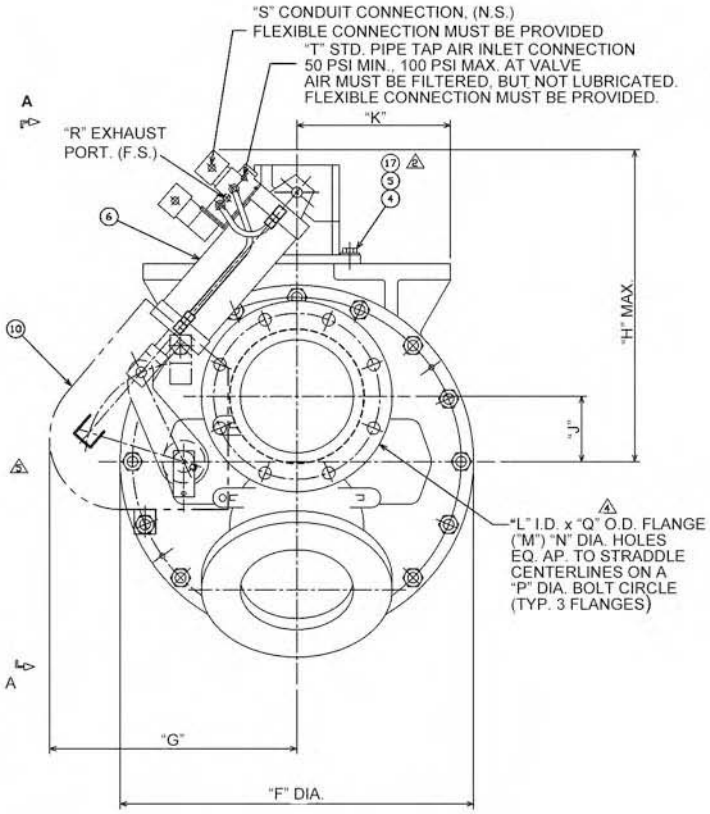
Size	Dimensions (Inches)											
	A	B	C	D	E	F	G	H	J	K	L	M
3"	14 1/2"	21 5/8"	7 7/8"	25 3/4"	6"	7 1/2"	15 1/4"	4"	3/4"	3/4"	9 3/4"	7 1/2"
4"	14 3/4"	20 9/16"	8 5/16"	24"	7 1/2"	9"	15 7/8"	8"	3/4"	1"	10 1/4"	8 1/4"
5"	14 3/8"	23 3/4"	11 1/4"	29 7/8"	8 1/2"	10"	16 1/4"	8"	7/8"	1"	10 5/8"	8 5/8"
6"	17"	23 3/4"	10 3/4"	29"	9 1/2"	11"	17 9/16"	8"	7/8"	1"	10 7/8"	9 7/8"
8"	18 3/4"	30 3/4"	13 11/16"	36"	11 3/4"	13 1/2"	19 3/8"	8"	7/8"	1 1/8"	10 7/8"	12 1/2"
10"	20 1/8"	32 7/8"	17"	40"	14 1/4"	16"	21 1/4"	12"	1"	1 1/8"	11 1/8"	14 3/4"
12"	36 1/2"	39"	18 5/8"	46"	17"	19"	23 3/8"	12"	1"	1 1/4"	NA	17 5/8"
14"	49"	52"	21 13/16"	61"	18 3/4"	21"	26 7/8"	12"	1 1/8"	1 3/8"	NA	19"

CONVEYING LINE VALVE 2-WAY DIVERTER/CONVERGER

Size	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T
3”	2’ 1-3/4”	13 5/8”	7 7/8”	9 1/8”	3/4”	15”	12”	21 5/8”	2 1/8”	9 3/4”	3”	4	3/4”	6”	7 1/2”	1/2”	1/2”	3/4”
4”	2’ 0”	12 1/4”	8 5/16”	8 5/16”	1”	16 1/2”	12 7/8”	19 1/4”	2 1/2”	10 1/4”	4”	8	3/4”	7 1/2”	9”	3/8”	1/2”	3/4”
5”	2’ 5-7/8”	12 1/2”	11 1/4”	10 1/2”	1”	16 3/4”	14 3/8”	21”	3”	10 5/8”	5”	8	7/8”	8 1/2”	10”	1/2”	1/2”	3/4”
6”	2’ 5”	13”	10 3/4”	9 1/4”	1”	19 3/4”	15 7/8”	21 1/2”	3 1/2”	10 7/8”	6”	8	7/8”	9 1/2”	11”	1/2”	1/2”	3/4”
8”	3’ 0”	17 1/16”	13 11/16”	10 3/4”	1 1/8”	2’ 1”	17 1/2”	22”	4 5/8”	10 7/8”	8”	8	7/8”	11 3/4”	13 1/2”	1/2”	1/2”	3/4”
10”	3’ 4”	15 7/8”	17”	12 7/8”	1 1/8”	2’ 5-1/2”	21 9/16”	2’ 0”	5 5/8”	11 1/8”	10”	12	1”	14 1/4”	16”	1/2”	1/2”	3/4”
12”	3’ 10”	20 3/8”	18 5/8”	11 1/2”	1 1/4”	2’ 11-1/2”	2’ 1-5/16”	2’ 5”	6 7/8”	8 1/4”	12”	12	1”	17”	19”	1/2”	1/2”	3/4”
14”	5’ 1”	2’ 6-3/16”	21 13/16”	10 1/2”	1 3/8”	3’ 2”	2’ 2-13/32”	2’ 9”	7 3/8”	10”	14”	12	1 1/8”	18 3/4”	21”	1/2”	1/2”	3/4”

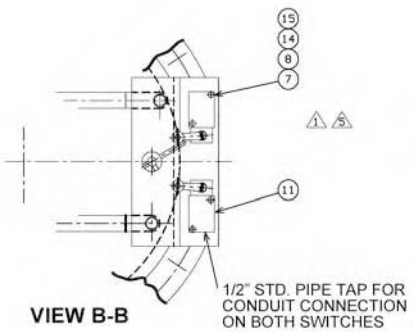


VIEW A-A

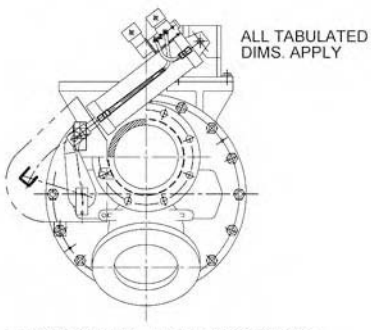


END VIEW OF 8”, 10”, 12” & 14” S.K. VALVES

NOTES:
1. VALVE SHOWN IS R.H. - FOR L.H. VALVE, LEVER ASSEMBLY IS ON OPPOSITE SIDE
2. FOR PNBRS SEE RECALL SHEET DWG. 116-72-4-0901 (SHT. 5)
3. AIR CYLINDER OPERATION TO BE TESTED AT 50 PSI AIR PRESSURE AT ASSEMBLY.



VIEW B-B



END VIEW OF 3”, 4”, 5”, & 6” SK VALVES

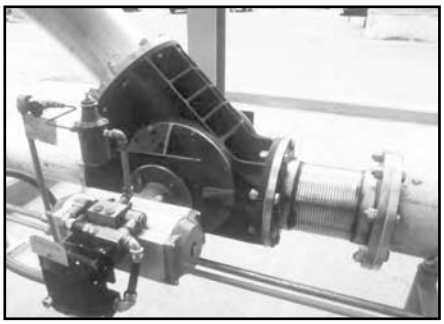
TYPE FA, 90 DEGREE, 45 DEGREE

APPLICATION:

FLSmidth Diverter/Converger Pipeline Valves provide positive and dependable switching of material flow in pressure or vacuum pneumatic conveying systems. These valves are used primarily in industries where product integrity or purity is required using stainless steel or aluminum construction for conveying purposes.

TYPE "FA"

90 DEGREE



45 DEGREE

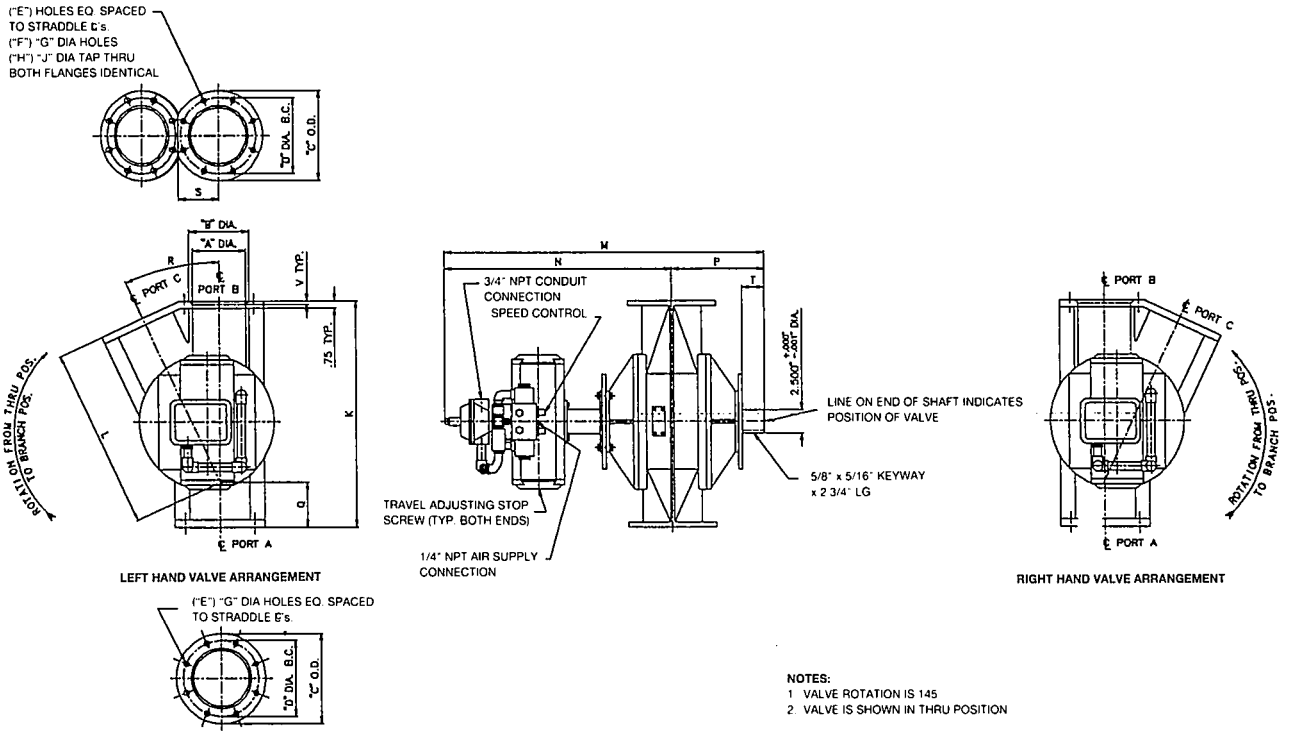
SPECIFICATION:

- 3, 4, 5, 6, 8, 10 & 12 (75, 100, 125, 150, 200, 250 & 300 mm) sizes available
- 15 PSIG (1.1 Kg/cm^2) & 150°F (65°C) std. design
- Lip type shaft seals
- Non lubricating type bearings
- Double acting air cylinder
- NEMA 4, 7, 9 electrical rating
- Dual solenoid w/manual override, 120 V.
- 2 SPDT limit switches
- Prepiped and prewired to a switch box
- Combinations of aluminum/stainless steel materials of construction
- Flanged connections

Options: Voltages, special materials and coatings, DPDT switches, temperature, electric motors and hand lever actuators

FEATURES	BENEFITS
Cast heavy duty ribbed design	• Ensures dimensional stability
Interchangeable right/left hand actuator packages	• Easy field changes in congested areas
90°, 45° & 30° divert angles	• Matches plant standard • Retrofit applications
Solenoids & limit switches----pre-piped & prewired to a switch box	• Eliminates field labor • Convenient one point connection
Standard NEMA 4, 7, & 9 electrical rating	• Allows usage throughout plant - hazardous & non-hazardous
Plug, tunnel or shoe type rotors	• For smooth handling of pelleted or powder material
Straight thru design	• For diverter/converger service

TYPE FA DIVERTER



NOTES:
1. VALVE ROTATION IS 145
2. VALVE IS SHOWN IN THRU POSITION

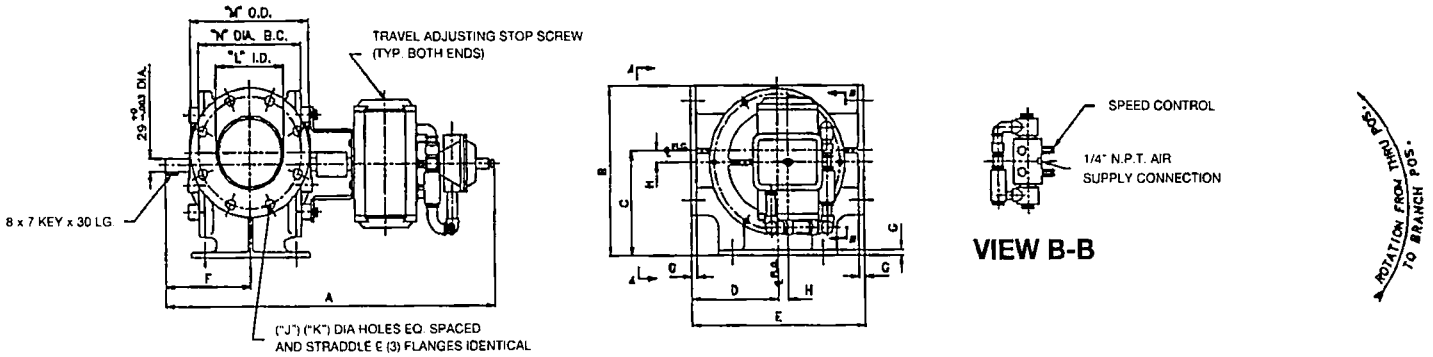
SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	V
3"	3"	3-5/16"	6-1/2"	5"	6"	4"	9/16"	2	1/2"-13	18"	13-5/8"	2' 7-15/16"	23-1/8"	8-13/16"	4-3/8"	25'	-	2-3/8"	3/8"
4"	4"	4-5/16"	7-1/2"	6"	8"	6"	9/16"	2	1/2"-13	22"	16-15/16"	2' 8-13/16"	23-9/16"	9-1/4"	5-1/16"	25'	-	2-3/8"	3/8"
5"	5"	5-5/16"	8-1/2"	7"	8"	6"	9/16"	2	1/2"-13	2' 0"	19-3/16"	2' 10-1/16"	2' 0-3/16"	9-7/8"	4-13/16"	25'	-	2-3/8"	3/8"
6"	6-1/16"	6-3/8"	9-1/2"	8"	8"	6"	9/16"	2	1/2"-13	2' 0"	19-3/16"	2' 10-1/16"	2' 0-3/16"	9-7/8"	4-13/16"	25'	-	2-3/8"	3/8"
8"	8"	8-1/16"	12-1/2"	11"	8"	6"	9/16"	2	1/2"-13	2' 1"	20-13/16"	3' 7-1/4"	2' 5-3/4"	13-1/2"	4-13/16"	30'	5-9/16"	3-1/4"	3/8"
10"	10"	10-7/16"	14"	13"	8"	6"	9/16"	2	1/2"-13	2' 11-3/4"	2' 3-3/4"	2' 6-11/16"	3' 9-1/8"	14-7/16"	8"	30'	7-7/16"	3-1/4"	3/8"
12"	12-3/8"	-	19"	17"	12"	10"	1"	2	7/8"-9	3' 8"	2' 11-1/2"	4' 2"	2' 9-7/8"	16-1/8"	8-1/2"	30'	-	3-3/4"	1"

Dimensions in inches

WEIGHT CHART (LBS) HAND LEVER OPERATED							
MATERIALS	**3"**	**4"**	**5"**	**6"**	**8'**	**10"**	**12"**
A.A.A	65	85	110	120	160	330	465
A.A.S.	100	128	205	215	240	504	844
S.S.S.	195	255	330	360	480	990	1395
S.A.S.	165	210	275	300	400	825	1162
EMO/AMO ADDER	75	75	75	75	100	100	130

*NOTE: (AAA) = Alum. body, rotor and end plates
(AAS) = Alum. body and end plates with stn. stl. rotor.
(SSS) = Stn. Stl. body, rotor and end plates.
(SAS) = Stn. stl. body and rotor with alum. end plates.

90 DEGREE DIVERTER



NOTES:
1. ALL DIMENSIONS ARE MILLIMETERS EXCEPT AS SHOWN
2. VALVE IS SHOWN IN THRU POSITION
3. R.H. VALVE IS SHOWN - FOR L.H. VALVE ACTUATOR IS MOUNTED ON OPPOSITE SIDE.
4. FLANGE DRILLING IS IN ACCORDANCE WITH ASA 150#
5. AIR SUPPLY TO BE 50 PSI MIN. - 100 PSI MAX.
6. AIR TO BE FILTERED AND LUBRICATED

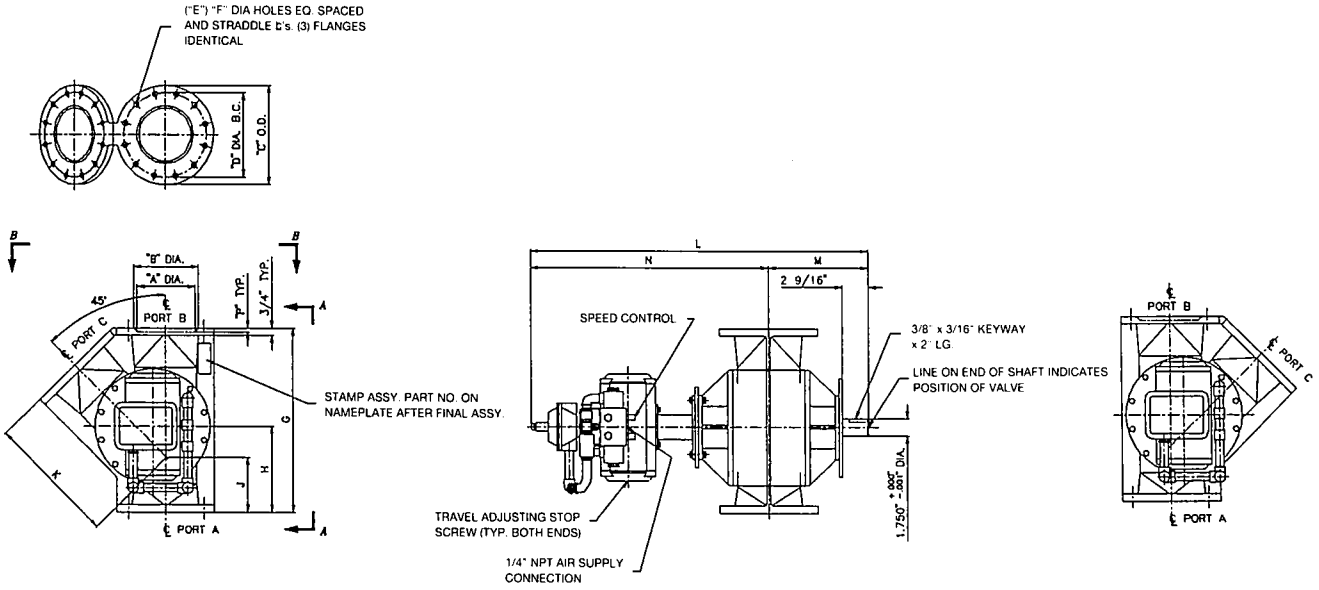
SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N
390	634	235	140	110	250	130	12	15	4	20	80	190	152
590	745	327.5	200	160	360	188	15	20	8	22	135	255	215
690	614	365	225	175	400	200	15	25	8	22	160	280	241
890	694	472.5	300	200	500	240	15	50	8	22	210	345	298
1090	904	564.5	362	238	600	270	20	62	12	25	260	405	362
1290	961	665.5	423	277	700	300	20	73	12	25	310	485	432

Dimensions in inches

WEIGHT CHART (LBS) HAND LEVER OPERATED						
MATERIALS*	**3”**	**5”**	**6”**	**8”**	**10’**	**12”**
A.A.A	50	65	95	130	200	300
A.A.S.	75	100	148	200	310	465
S.S.S.	150	195	285	390	600	900
S.A.S.	125	165	240	325	500	750
EMO/AMO ADDER	60	60	60	60	60	60

*NOTE: (AAA) = Alum. body, rotor and end plates
(AAS) = Alum. body and end plates with stn. stl. rotor.
(SSS) = Stn. Stl. body, rotor and end plates.
(SAS) = Stn. stl. body and rotor with alum. end plates.

45 DEGREE DIVERTER



NOTES:
1. VALVE IS SHOWN IN THRU POSITION
2. FLANGE DRILLING IN ACCORDANCE WITH ASA 150#

SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P
345	3"	3-1/4"	7-1/2"	6"	4"	3/4"	6-1/2"	8-29/32"	6-1/2"	10"	2' 3-3/8"	6-5/8"	20-3/4"	1/4"
445	4"	4-1/4"	9"	7-1/2"	8"	3/4"	17-3/4"	8-3/8"	5-1/16"	12-11/16"	2' 4-5/8"	7-1/4"	21-3/8"	5/16"
545	5"	5-5/16"	10"	8-1/2"	8"	7/8"	18-3/4"	8-11/16"	5-9/16"	13-3/16"	2' 5-5/8"	7-3/4"	21-7/8"	5/16"
645	6"	6-3/8"	11"	9-1/2"	8"	7/8"	20-3/4"	9-11/16"	6-9/16"	14-3/16"	2' 7-5/8"	8-3/4"	22-7/8"	3/8"
845	8"	8-3/8"	13-1/2"	11-3/4"	8"	7/8"	23-5/8"	10-27/32"	6-3/16"	17-7/16"	2' 10-1/4"	10-1/16"	2' 0-3/16"	3/8"
1045	10"	10-7/16"	16"	14-1/4"	12"	1"	2' 5-1/2"	14-1/2"	9-1/8"	20-3/8"	2' 11-7/8"	10-7/8"	2' 1"	3/8"
1245	12"	12-3/8"	19"	17"	12"	1"	2' 9-1/2"	16-1/8"	9-1/2"	2' 0"	3' 1-1/2"	11-11/16"	2' 1-13/16	3/8"

Dimensions in inches

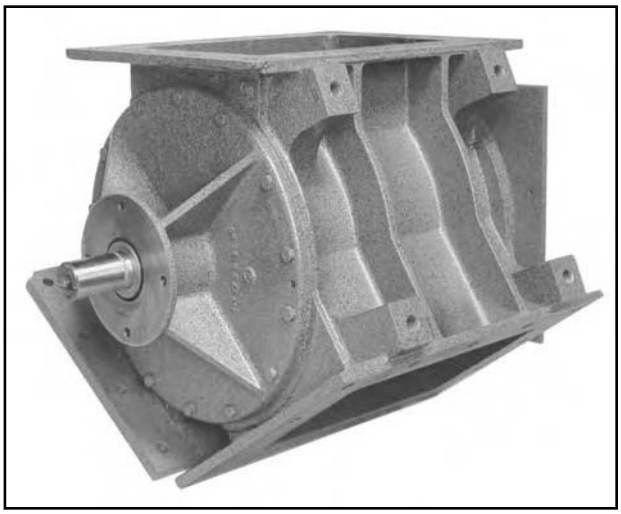
WEIGHT CHART (LBS) HAND LEVER OPERATED							
MATERIALS*	**3"**	**4"**	**5"**	**6"**	**8"**	**10"**	**12"**
A.A.A	60	70	75	105	140	210	330
A.A.S.	90	105	115	160	210	315	495
S.S.S.	180	210	225	315	420	630	990
S.A.S.	150	175	190	265	350	525	825
EMO/AMO ADDER	75	75	75	75	75	75	75

*NOTE: (AAA) = Alum. body, rotor and end plates
(AAS) = Alum. body and end plates with stn. stl. rotor.
(SSS) = Stn. Stl. body, rotor and end plates.
(SAS) = Stn. stl. body and rotor with alum. end plates.

TWO-WAY GRAVITY DIVERTER GATE

APPLICATION:

The FLSmidth gravity diverter gate provides leak-resistant diversion of bulk materials to either of two delivery points. It has a center rotating vane assembly machined for a close fit to the cast housing, and is used primarily where leakage must be minimized.



SPECIFICATION:

General

The diverter gate offers high operating efficiency and long life. Body, end plates, and gate are rugged castings, fully ribbed to ensure dimensional stability. The body and diverter gate are machined to close tolerances to prevent leakage and ensure smooth operation. Bearings are of the non-lubricating type. Lip-type shaft seals provide gas-tight performance.

Materials of construction

This product is available in either Class 50 cast iron, 319 aluminum, or 304 stainless steel. Bearings are Oilite® bronze, and lip seals are nitrile. Other seal materials are available.

Temperature limitation Standard gates are suitable for material temperature up to 225° F (107°C). Special seals accommodate higher operating temperatures.

Operation

Manual

Hand-operated gates include a manual operating lever with locking pin.

Air operated

The air-operated diverter gate includes an actuator and an air control valve with two separate speed controls. The operator is factory lubricated and sealed, requiring no further lubrication under normal operating conditions. The air operator is direct connected with totally enclosed rack and pinion. The air control valve has manual override capability. The actuator and control valve is furnished complete with all interconnecting piping. The control voltage for the solenoids is 120 V 60Hz. 50 to 80 PSIG (3.5 to 5.6 Kg/cm^2) clean plant air is required.

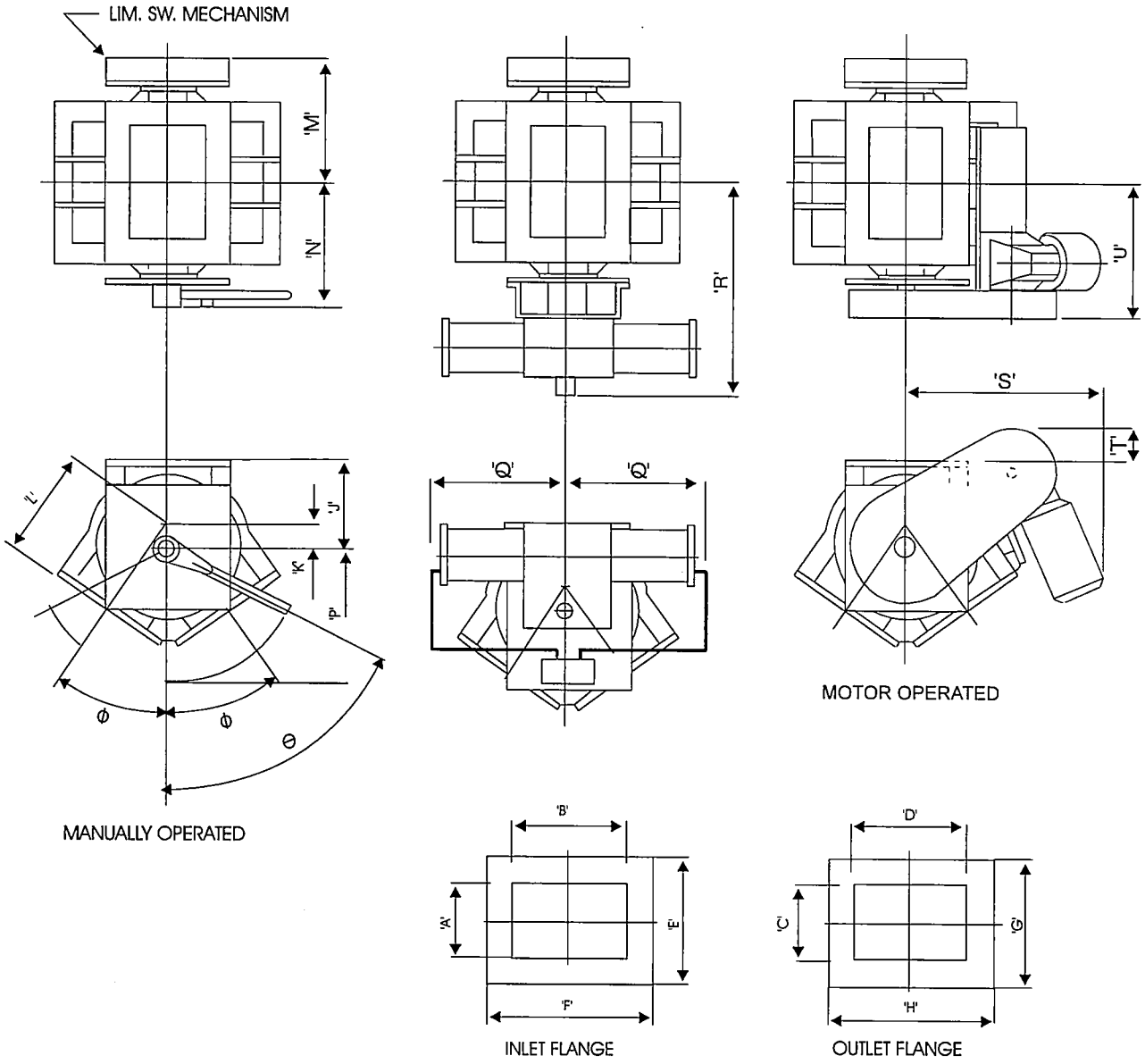
Motor operated

Electric-motor-operated gates are of a chain and sprocket design. They are furnished with a 1/4 hp right-angle TENV gearmotor with uni-brake. 230/460-volt, 3-phase, 60 Hz. operation is standard.

Special Order Options

a. All gates are furnished with two limit switches for direction control and position indication. These switches can be provided in NEMA 4, 7 and 9.
b. Explosion-proof motor and uni-brake, and solenoid valves can be provided.
c. Guards are available for all models and modes of operation.

TWO-WAY GRAVITY DIVERTER GATE



SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U	⊖	ϕ
5 x 5	5	5	5	5	9 1/8	9 1/8	9 1/8	9 1/8	5 11/16	3	9 1/2	13 3/16	9 1/2	14	11 9/16	19 3/16	20 1/4	3/4	10	63”	30”
5 x 10	5	10	5	10	9 1/8	14 1/8	9 1/8	14 1/8	5 11/16	3	9 1/2	12 3/16	12	14	11 9/16	21 11/16	20 1/4	3/4	12 1/2	63”	30”
8 x 12	8	12	8	12	13	17	13	17	9	2 7/16	11	13	13	18	12	24 3/16	22	3 1/2	14	63”	35”
10 x 16	16	16	10	16	21	21	15	21	11	3 5/16	15 1/4	18 1/8	18 1/8	18	12 3/4	29 1/2	22 3/8	6	19	62”	30”

APPLICATION:

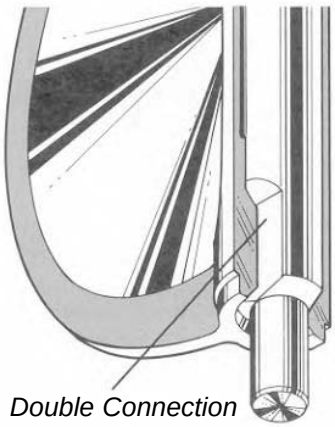
FLSmidth is proud to offer a new line of high quality butterfly valves to meet the requirements of today's market. Combining years of field application experience in the minerals and cement markets, with research and development, FLSmidth has designed many unique features into the valve, resulting in longer service life, greater reliability, ease of parts replacement and interchangeability of components.

Butterfly Valve

SPECIFICATION:

DISC AND STEM CONNECTION

Features a high-strength through stem design. The close tolerance connection that drives the valve disc is a special feature of the FLSmidth valve. It eliminates stem retention components being exposed to the line media, such as disc screws and taper pins, which commonly result in leak paths, corrosion, and vibration failures. Disc screws or taper pins, due to wear and corrosion, often require difficult machining for disassembly. Disassembly of the FLSmidth stem is just a matter of pulling the stem out of the disc. Without fasteners obstructing the line flow, the Cv values are higher than many other valves, turbulence is reduced, and pressure recovery is increased. The stem ends and top mounting flange are standardized for interchangeability with FLSmidth actuators.



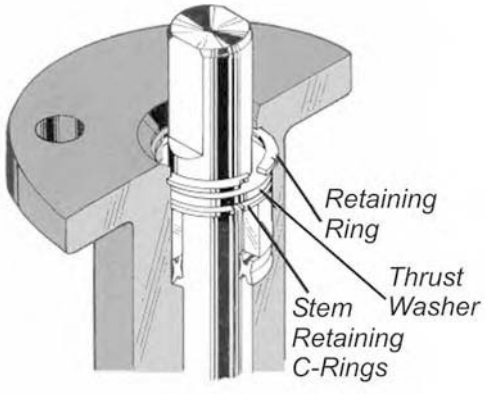
Double Connection

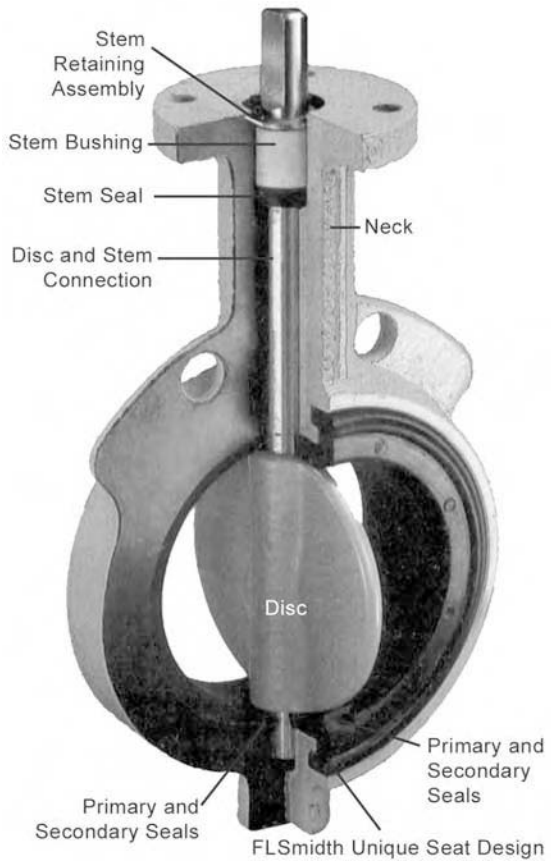
DISC

Casting is spherically machined, hand polished to provide a bubble-tight shut off, minimum torque, and longer seat life. The disc O.D. clearance is designed to work with all standard piping.

STEM RETAINING ASSEMBLY

The stem is retained in the body by means of a unique Stainless Steel retaining ring, a thrust washer and two C-rings, manufactured from brass as standard, stainless steel upon request. The retaining ring may be easily removed with a standard hand tool. The stem retaining assembly also prevents accidental removal of stem during field service.





STEM BUSHING
Non-corrosive, heavy duty acetal bushing absorbs actuator side thrusts

STEM SEAL
Double “U” cup seal design is self adjusting and gives positive sealing in both directions. Prevents external substances from entering stem bore.

NECK
Extended neck length allows for 2” of piping insulation and is easily accessible for mounting actuators.

PRIMARY AND SECONDARY SEALS
The Primary Seal is achieved by an interference fit of the unique molded seat flat with the disc hub. The Secondary Seal is created because the stem diameter is greater than the diameter of the seat stem hole. These seals prevent line media from coming in contact with the stem or body.

TYPE SB & USB MAXIMUM TEMPERATURE 250°F (121°C)
Type SB & USB wafer-style Butterfly Valve for gas service only, reduced diameter disc, ANSI class 125/150, 80% vacuum to 50 PSI differential pressure, cast iron body, phosphate-coated D.I. disc, 416 stainless steel shaft, EPDM seat

TYPE HB & UHB MAXIMUM TEMPERATURE 400°F (205°C)
Type HB & UHB wafer-style Butterfly Valve for gas service only, reduced diameter disc, ANSI class 125/150, 80% vacuum to 50 PSI differential pressure, cast iron body, phosphate-coated D.I. disc, 416 stainless steel shaft, VITON seat

FLSMIDTH UNIQUE SEAT DESIGN
One of the valve's key elements is the unique tongue-and-groove seat design. This resilient seat features lower torque than many valves on the market today and provides complete isolation of flowing media from the body. The tongue-and-groove seat to body retention method is superior to traditional designs, making field replacement simple and fast. The seat is specifically designed to seal with slip-on or weld-neck flanges. The seat features a molded O-ring which eliminates the use of flange gaskets. An important maintenance feature is that all resilient seats for FLSmidth butterfly valves are completely interchangeable.


Tongue and Groove Design

ACTUATOR MOUNTING FLANGE AND STEM CONNECTION
Universally designed to ISO 5211 for direct mounting of FLSmidth power actuators and manual operators.

FLANGE LOCATING HOLES
Provides quick and proper alignment during installation.

BODY
One-piece wafer style. Polyester coating for excellent corrosion resistance. FLSmidth valve bodies meet ANSI 150 pressure ratings for hydrostatic shell test requirements.

TEMPERATURE RANGE OF SEATS

Type	Max	Min
EPDM	+ 250°F (+121°C)	-40°F (-40°C)
Viton	+ 400°F (+204°C)	0°F (-18°C)

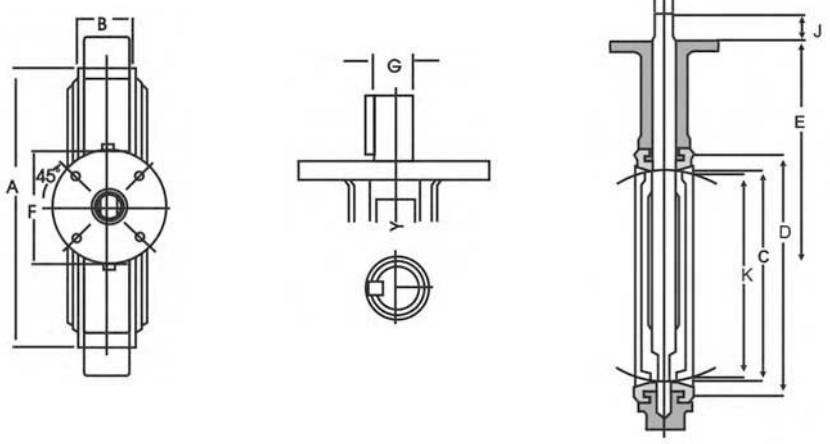
DESIGN FEATURES

The FLSmidth Butterfly valve is a wafer version with flange locating holes. All FLSmidth valves are tested to 110% of full pressure rating before shipment.

A major design advantage of FLSmidth valve product lines is international compatibility. The same valve is compatible with most world flange standards - ANSI Class 125/150, BS 10 Tables D and E, BS 4504 NP 10/16, DIN ND 10/16 AS 2129 and JIS 10. In addition, the valves are designed to comply with ISO 5752 face-to-face and ISO 5211 actuator mounting flanges. Therefore, one valve design can be used in many different world markets.

Due to a modular concept of design, all FLSmidth handles, manual gear operators, and pneumatic and electric actuators mount directly to FLSmidth valves. No brackets or adapters are required. The standard FLSmidth design includes the pneumatic actuator.

FLSmidth interchangeability and compatibility offers you the best in uniformity of product line and low-cost performance in the industry today.



WEIGHTS

Valve Size		Weight	
In.	mm	Lbs.	kg
2"	50	5.5	2
2 ½"	65	7	3
3"	80	7.5	3
4"	100	11.5	5
5"	125	14	6
6"	150	17	8
8"	200	34	15
10"	250	49	22
12"	300	67	30
14"	350	95	43
16"	400	135	61
18"	450	200	91
20"	500	260	118

DIMENSIONS FLSMIDTH WAFER SERIES

Valve Size		A		B		C		D		E		F		Mounting Flange Drlg. BC		No. of Holes	Hole Dia.		G		H		J		K	
In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm		In.	mm	In.	mm	In.	mm	In.	mm	In.	mm
2"	50	3.69	93	1.62	41	2.00	50	2.84	72	5.50	139	3.54	89	2.76	70	4	0.39	9	0.55	13	0.39	9	1.25	31	1.32	33
2 ½"	65	4.19	106	1.75	44	2.50	63	3.34	84	6.00	152	3.54	89	2.76	70	4	0.39	9	0.55	13	0.39	9	1.25	31	1.91	48
3"	80	4.88	123	1.75	44	3.00	76	4.03	102	6.25	158	3.54	89	2.76	70	4	0.39	9	0.55	13	0.39	9	1.25	31	2.55	64
4"	100	6.06	153	2.00	50	4.00	101	5.16	131	7.00	177	3.54	89	2.76	70	4	0.39	9	0.63	16	0.43	10	1.25	31	3.57	90
5"	125	7.12	180	2.12	53	5.00	127	6.16	156	7.50	190	3.54	89	2.76	70	4	0.39	9	0.75	19	0.51	12	1.25	31	4.63	117
6"	150	8.12	206	2.12	53	5.75	146	7.02	178	8.00	203	3.54	89	2.76	70	4	0.39	9	0.75	19	0.51	12	1.25	31	5.45	138
8"	200	10.50	266	2.50	63	7.75	196	9.47	240	9.50	241	5.91	150	4.92	124	4	0.57	14	0.87	22	0.63	16	1.25	31	7.45	189
10"	250	12.75	323	2.50	63	9.75	247	11.47	291	10.75	273	5.91	150	4.92	124	4	0.57	14	1.18	29	0.87	22	2.00	50	9.53	242
12"	300	14.88	377	3.00	76	11.75	298	13.47	342	12.25	311	5.91	150	4.92	124	4	0.57	14	1.18	29	0.87	22	2.00	50	11.47	291

Valve Size		A		B		C		D		E		F		Mounting Flange Drlg. BC		No. of Holes	Hole Dia.		G		J		Key Size		K	
In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm		In.	mm	In.	mm	In.	mm	In.	mm	In.	mm
14"	350	16.94	430	3.00	76	13.25	336	15.28	388	13.62	345	5.91	150	4.92	124	4	0.57	14.48	1.38	35	2	50.8	.39 x .39	10 x 10	13.04	331
16"	400	19.06	484	4.00	101	15.25	387	17.41	442	14.75	374	5.91	150	4.92	124	4	0.57	14.48	1.38	35	2	50.8	.39 x .39	10 x 10	14.85	377
18"	450	21.12	536	4.25	107	17.25	438	19.47	494	16.00	406	8.27	210	6.50	165	4	0.81	20.57	1.97	50	2.5	63.5	.39 x .47	10 x 12	16.85	427
20"	500	23.25	590	5.00	127	19.25	488	21.59	548	17.25	438	8.27	210	6.50	165	4	0.81	20.57	1.97	50	2.5	63.5	.39 x .47	10 x 12	18.73	475

POLYESTER CORROSION PROTECTIVE COATED
FLSmidth's standard product offers valve bodies with a polyester coating, providing excellent corrosion and wear resistance to the valve's surface. The FLSmidth polyester coating is a hard, gloss finish.
Chemical Resistance - resists a broad range of chemicals including: dilute aqueous acids and alkalies, petroleum solvents, alcohols, greases, and oils. Offers outstanding resistance to humidity and water
Weatherability - outdoor tested, resistant to ultra-violet radiation
Abrasion Resistance - excellent resistance to abrasion
Impact Resistance - withstands impact without chipping or cracking

RECOMMENDED SPECIFICATIONS FOR FLSMIDTH VALVES SHALL BE:
- Polyester coated, cast iron, wafer bodies
- Through-stem direct drive design requiring no disc screws or pins to connect stem to disc with no possible leak paths in disc/stem connection
- Stem mechanically retained in body neck and no part of stem or body exposed to line media
- Tongue-and-groove seat design with primary hub seal and a molded O-ring suitable for weld-neck and slip-on flanges. Seat totally encapsulates the body with no flange gaskets required.
- Spherically machined, hand-polished disc edge and hub for minimum torque and maximum sealing capability
- Equipped with non-corrosive bushing and self-adjusting stem seal
- Bi-directional and tested to 110% of full rating'
- Bi-directional pressure ratings:
- 2"-12" valves: 175 psi
- 14"-20" valves: 150 psi
- No field adjustment necessary to maintain optimal performance
- The valve shall be FLSmidth or equal

MATERIALS SELECTION
- 2" - 20" (50mm - 500mm)

BODY
- Cast Iron ASTM A126 Class B

SEAT
- EPDM - Food Grade
- Viton

STEM
- 416 Stainless Steel ASTM A582 Type 416

DISC
- Coated Ductile Iron ASTM A536 Gr. 65-45-12

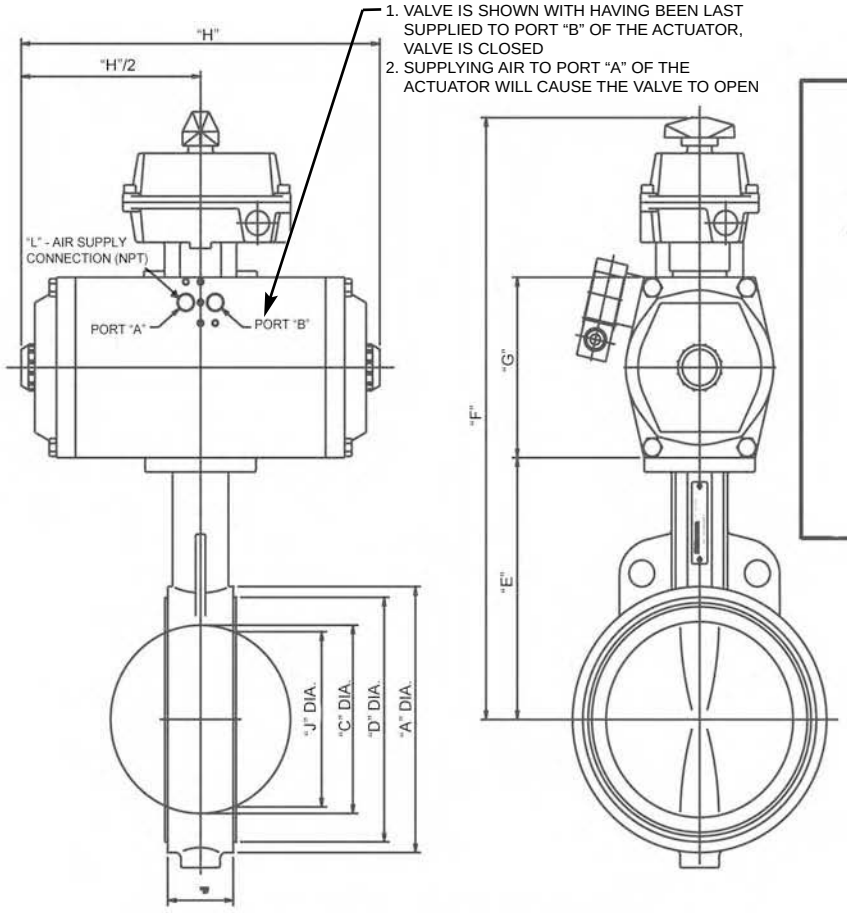
ACTUATORS
- Hand lever
- Air cylinder

Item No.	Qty	Description
1	1	Body
2	1	Seat
3	1	Disc
4	1	Stem
5	1	Stem Seal
6	1	Stem Bushing
7	2	Stem Retainer
8	1	Thrust Washer
9	1	Retaining Ring

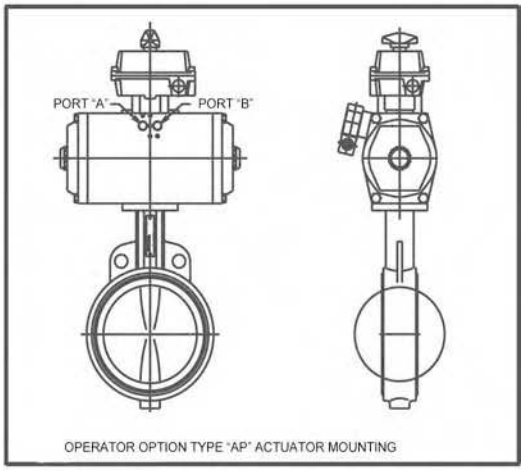
Valve Size													
Inches	mm	A	B	C	D	E	F	F	G	H	J	L	Ass'y Weight Lbs*
3"	80	4.88"	1.75"	3.00"	4.03"	6.25"	15.40"	16.23"	4.27"	7.89"	2.55"	1/8"	15
4"	100	6.06"	2.00"	4.00"	5.16"	7.00"	16.15"	16.98"	4.27"	7.89"	3.57"	1/8"	20
5"	125	7.06"	2.12"	5.00"	6.16"	7.50"	16.65"	17.48"	4.27"	7.89"	4.63"	1/8"	22
6"	150	8.12"	2.12"	5.75"	7.02"	8.00"	17.49"	18.32"	4.61"	8.91"	5.45"	1/8"	27
8"	200	10.50"	2.50"	7.75"	9.47"	9.50"	19.90"	20.73"	5.52"	12.10"	7.45"	1/4"	53
10"	250	12.75"	2.50"	9.75"	11.47"	10.75"	21.15"	21.98"	6.52"	12.10"	9.53"	1/4"	68
12"	300	14.88"	3.00"	11.75"	13.47"	12.25"	24.93"	25.76"	7.80"	15.45"	11.47"	1/4"	105
14"	350	17.05"	3.00"	13.25"	15.28"	13.62"	26.30"	27.13"	7.80"	15.45"	13.04"	1/4"	133
16"	400	19.21"	4.00"	15.25"	17.41"	14.75"	29.67"	30.50"	10.04"	18.92"	14.85"	1/4"	205
18"	450	21.12"	4.25"	17.25"	19.47"	16.00"	30.92"	31.75"	10.04"	18.92"	16.85"	1/4"	270
20"	500	23.25"	5.00"	19.25"	21.59"	17.25"	32.17"	33.00"	10.04"	18.92"	18.73"	1/4"	330

* Without solenoid and position indicator

NOTE:
1. VALVE IS SHOWN WITH HAVING BEEN LAST SUPPLIED TO PORT "B" OF THE ACTUATOR, VALVE IS CLOSED
2. SUPPLYING AIR TO PORT "A" OF THE ACTUATOR WILL CAUSE THE VALVE TO OPEN



OPERATOR OPTION TYPE "AI" ACTUATOR MOUNTING



OPERATOR OPTION TYPE "AP" ACTUATOR MOUNTING

NOTE:
3. OPERATOR OPTION TYPE "AI", ACTUATOR IS MOUNTED PARALLEL TO PIPELINE.
4. OPERATOR OPTION TYPE "AP", ACTUATOR IS MOUNTED PERPENDICULAR TO PIPELINE.
5. ALL SOLENOID VALVES SUPPLIED WITH MANUAL OVER-RIDE AND OPEN-CLOSE ADJUSTABLE SPEED CONTROL EXHAUST MUFFLERS.
6. FLANGE LOCATING HOLES MEET ANSI CLASS 125/150 DRILLINGS.
7. ADD 3 LBS. FOR SOLENOID.
8. ADD 3 LBS. FOR POSITION INDICATOR.

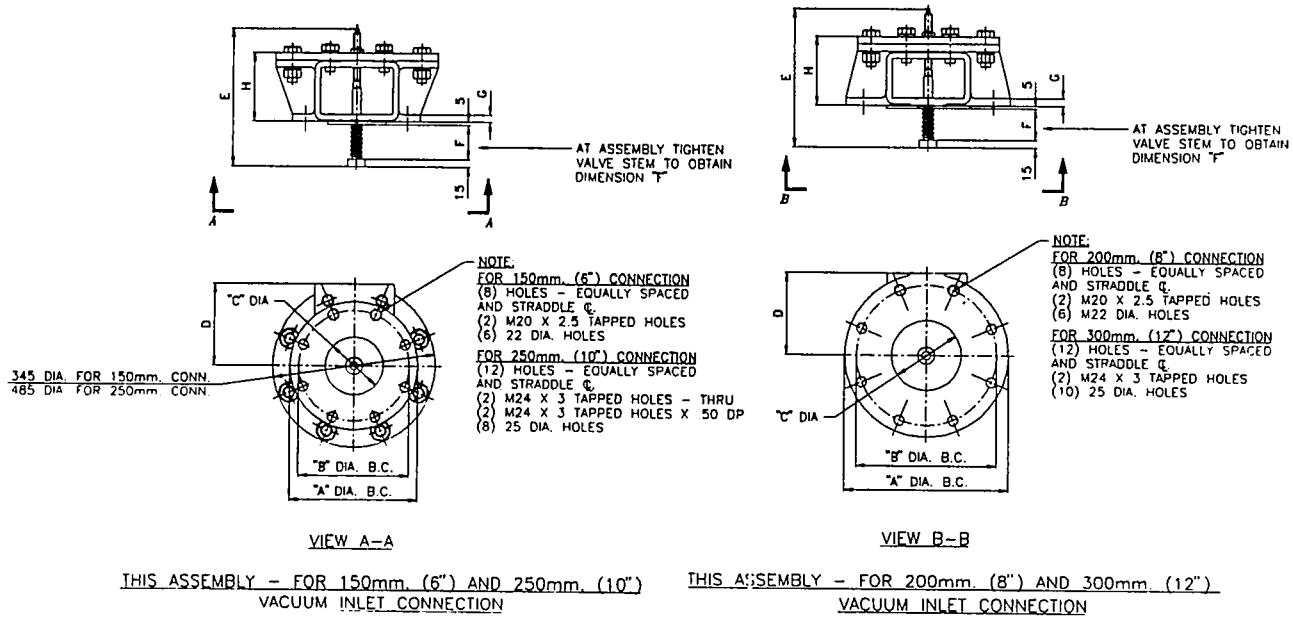
VACUUM INLET CONNECTION

APPLICATION:

FLSmidth's Vacuum Inlet Connection is used to preload vacuum conveying systems to aid in the withdrawal of material through the material feed valve. An adjustable spring allows a variable vacuum setting.

SPECIFICATION:

- Cast iron housing
- 304 stainless steel disc.
- Adjustable spring for vacuum settings to 4" HG
- 150 lb flanged connection
- Sizes: 150 (6"), 200 (8"), 250 (10"), 300 (12")

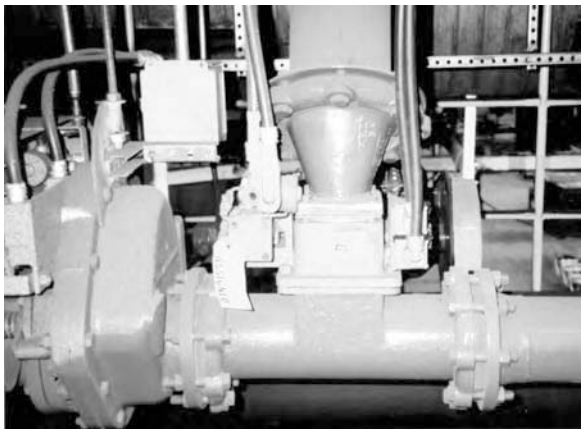


Size	A	B	C	D	E	F	G	H	Weight (Kg)
150	280	241	115	173	300	63	15	162	32
200	345	298	150	173	300	62	15	162	34
250	405	362	205	243	380	68	20	226	79
300	485	432	230	243	380	82	20	226	86

All dimensions in millimeters

APPLICATION: FLSmidth's Material Feed Valve efficiently introduces material into vacuum conveying systems, the abrasion resistant construction permits use on any conveyable material. 8" and 10" (200 mm and 250 mm) inlet sections connecting to pipeline size 3" to 10" (75 mm to 250 mm) are standard.

- Precipitator Hopper - Fly Ash
- Fluid Bed Ash Hopper - Bottom Ash
- Rail Car Loadout - Miscellaneous



8" Material Feed Valve

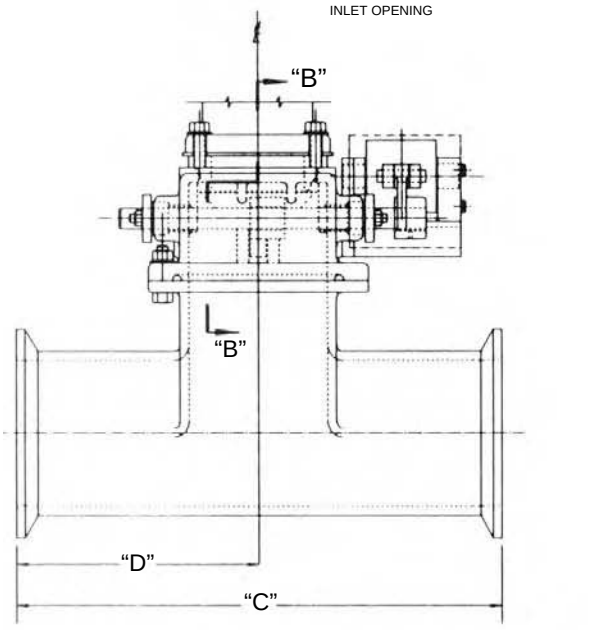
SPECIFICATION:

- 450 iron construction (575 BHN) inlet, disc, seat and tee
- Cast iron body
- Beveled inlet connection with 150 lb. drilled half couplings
- 400°F (205°C) standard design temperature
- Air cylinder actuated with single solenoid, 120V, manual override
- 2-S.P.D.T. NEMA 4 limit switches
- Sizes - material inlet - 8" and 12" (200 mm and 300 mm)
  pipeline - 3", 4", 5", 6", 8",10" (75mm, 100mm, 125mm, 150mm, 200mm, 250mm)

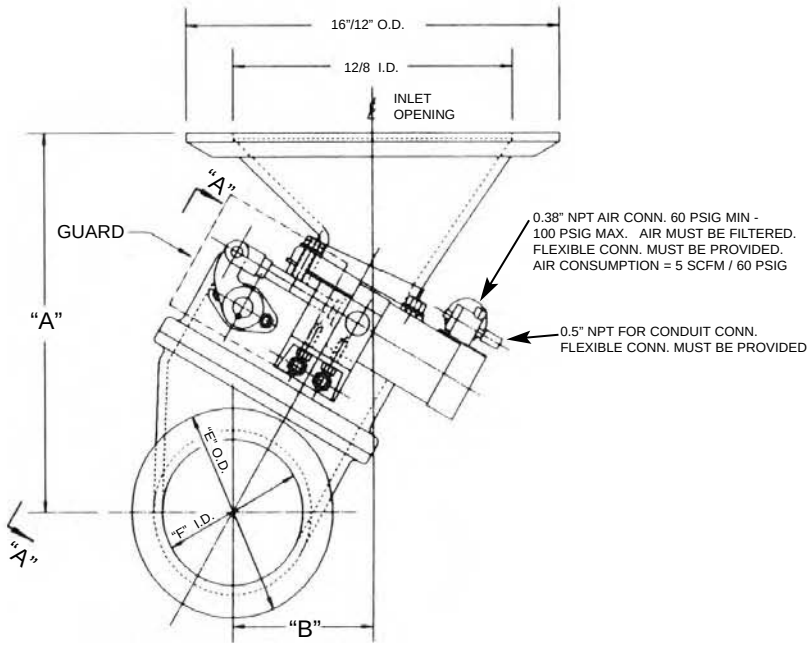
Special designs: 850°F (450°C) design, voltages, switch ratings

Features	Benefits
8" or 12" inlet connections with beveled ends	• Suitable for new or existing applications • Flanged half couplings meet 150 lb. drilling
Abrasion resistant construction	• Suitable for handling any conveyable material
Orifice Plate	• Fine tunes desired rate
Angled inlet to pipeline	• Feeds directly into pipeline • Prevents flooding
Air cylinder actuated	• Quick response, reliable operation
Plain or beveled end pipe connection	• 150 lb. flanged or reducing style couplings available

DIMENSIONAL DATA



ROTATED VIEW "A-A"



Size	Dimensions (Inches)										Weight (lbs)	
	A	B	C	D	E	F	G	H	GI	HI	8"	12"
4	15 7/8	5 15/16	16	8	6 3/4	4	8	10 7/8	12	16	125	135
5	15 5/8	6 5/8	16	8	7 5/8	5	8	10 7/8	12	16	130	140
6	15 3/16	7 5/16	21	10 1/2	8 5/8	6	8	10 7/8	12	16	144	155
8	16 3/8	8 13/16	21	10 1/2	10 7/8	8	8	10 7/8	12	16	157	170
10	16 15/16	10 5/16	21	10 1/2	13 1/4	10	8	10 7/8	12	16	176	190

STANDARD PRODUCT GROUP D

DUST COLLECTION EQUIPMENT

PNEUMATIC	INDUSTRY CODES
Compressor Intake Filter *see Group A*	**C, M, PL, P, S, G**
Uni-Filter (unit collector)	**C, M, P, S, G**
DS Filter	**C, M, PL, P, S, G**

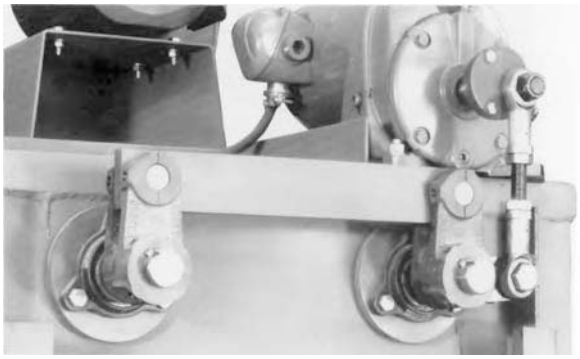
INDUSTRY CODES

C = CEMENT
M = MINERALS
PL = PLASTICS
P = POWER
S = STEEL
G = GENERAL

DECENTRALIZED, ECONOMICAL DUST CONTROL

APPLICATION: FLSmidth Uni-Filters provide de-centralized dust collection from widely separated sources, reducing piping and power costs involved in large centralized systems. Our Uni-Filters have the same engineering construction and operating features which have made our larger fabric collectors a basic tool for industrial dust control. Shipped completely assembled and ready-to-install, Uni-Filters can be located close to dust sources and require only a small operating area. If the dust-creating operation moves or changes, the unit's compact design permits easy relocation.

Full Height Access Door



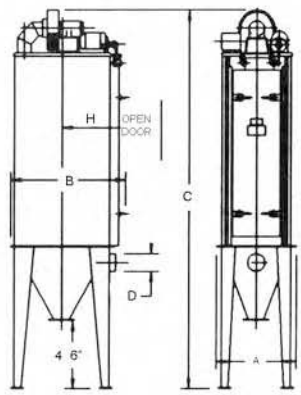
Extra Heavy Duty Shaker Drive

Adjustable Volume Fan

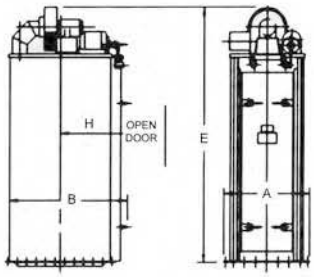
SPECIFICATION:

FEATURES	BENEFITS
Shipped assembled and ready to install	• Easy, low cost installation
No tools required for adjustment or change of bags	• Low maintenance
Small operating area	• Minimal space requirements
Motor-driven bag cleaning shaker mechanism	• No compressed air piping required
Available with integral roof-mounted fan	• Complete package
Low-cost	• Easy on your budget

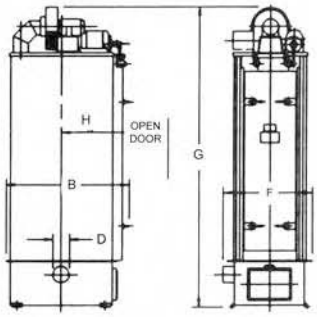
DECENTRALIZED, ECONOMICAL DUST CONTROL



Hopper Bottom with Supports (STD)



Open Bottom Flange Mounted (FM)



Flat Bottom Dust Box (FB)

MODEL NO.	DIMENSIONS								SHIPPING WEIGHT (lbs)		
	A	B	C	D	E	F	G	H	STD	FM	FB
2	2' 8"	3' 6"	5' 2"	6"	8' 3"	2' 10"	9' 10"	3' 9"	1550	910	1025
3	4' 8"	3' 6"	16' 11"	8"	9' 2"	4' 10"	10' 9"	3' 9"	2445	1675	1840
4	6' 8"	3' 6"	18' 9"	10"	9' 2"	6'1"	10' 9"	3' 9"	3120	2100	2365
5	4' 8"	7' 0"	20' 2"	12"	10' 8"	N/A	N/A	5' 3"	3765	2700	N/A
6	5' 8"	7' 0"	20' 2"	14"	10' 8"	N/A	N/A	5' 3"	4015	2900	N/A
7	6' 8"	7' 0"	20' 2"	16"	10' 8"	N/A	N/A	5' 3"	4370	3200	N/A

Uni-Filters are available in six sizes, with varying capacities. Hopper bottom units have a 7" (175 mm) square discharge flange as standard. Discharge devices available are: slide gate, swing gate, trickle valve, and motor operated 8" (200 mm) rotary discharge lock.

Uni-Filters of stainless steel or aluminum can be furnished for special applications.

Multiple compartment Uni-Filters with air valves and timers for automatic operation are available.

SPECIFICATIONS						
Size	**2**	**3**	**4**	**5**	**6**	**7**
(1) Capacity, CFM Nominal Rating	600 @ 7.7" W.G.	1200 @ 7.5" W.G.	1800 @ 7.1" W.G.	2400 @ 7.7" W.G.	3000 @ 7.5" W.G.	3600 @ 8.15" W.G.
(2) Capacity CFM Maximum	800 @ 6" W.G.	1600 @ 6.9" W.G.	2400 @ 6" W.G.	3200 @ 7.4" W.G.	4000 @ 6.9" W.G.	4800 @ 7.3" W.G.
Number of Multibags	8	16	24	32	40	48
Cloth Area (FT^2)	200	400	600	800	1000	1200
Fan Motor (230/460 V)	2 HP	3 HP	5 HP	7 1/2 HP	7 1/2 HP	10 HP
3 Ph, 60 Hz, 3600 RPM, TE Shaker Gearmotor (230/460 V, 3 Ph, 60 Hz, 420 RPM, TE)	1/3 HP	1/3 HP	1/3 HP	3/4 HP	3/4 HP	3/4 HP

DS FILTER

APPLICATION:

The DS Filter was developed to complete FLSmidth's line of high ratio, pulse cleaning dust collectors.

The flange-mounted unit can be bolted directly to a silo or bin to handle air displacement from any type of conveying system.

The hopper-designed unit for handling small dust volumes can be installed anywhere there is a remote dust problem that cannot be handled by a centralized dust collector system.

SPECIFICATION:

General

Jet-Pulse™ Dust Collector Side Access Series is a compact modular shop assembled unit with an automatic self-cleaning system that utilizes pulse jets of high pressure air to provide efficient, thorough cleaning with no internal moving parts. Bag and cage inspection/replacement is through a full size (16 1/2" x 5' 10") hinged and gasketed door in the housing.

It handles volumes ranging from 500 to 12,000 CFM(14.2 to 340 cmm) providing an ideal, inexpensive solution to many dust collecting problems.

Bags - Made from 14 to 16 oz/yd^2 polyester needled scrim supported felt. Total cloth area ranges from 170 to 1880 square feet (16 to 175 m^2). Bags are 5" (125 mm) diameter by 8' (2438 mm) long.

Cages - Fabricated of 1/8" (3.18 mm) steel wire.

Plenum - Made from 12 gauge all welded carbon steel to withstand A20" W.G. differential pressure. Each row of bags is provide with one 1 1/2" (38 mm) pulse valve.

Housing - Fabricated from 12 gauge all welded carbon steel to withstand A20" W.G. differential pressure. Seals and gaskets capable of withstanding 425° F (218° C). Housing access door (16 1/2" wide x 5' 10" high), hinged and gasketed with quick opening latches.

Hopper - Single Pyramid type, fabrication from 10 and 12 gauge carbon steel complete with inlet stub and baffle, reinforced for ±20" W.G.

Standard Hopper Discharge - FLSmidth's Shrouded Rotary Lock, complete with 1/2 H.P., 35 R.P.M output, right angle gearmotor; chain drive and OSHA guard. Motor voltage 230/460/3/60.

Structural Supports - Fabricated steel supports to provide for 40" (1016 mm) clearance below discharge lock; designed for 30 PSF (.01 Kg/cm^2).

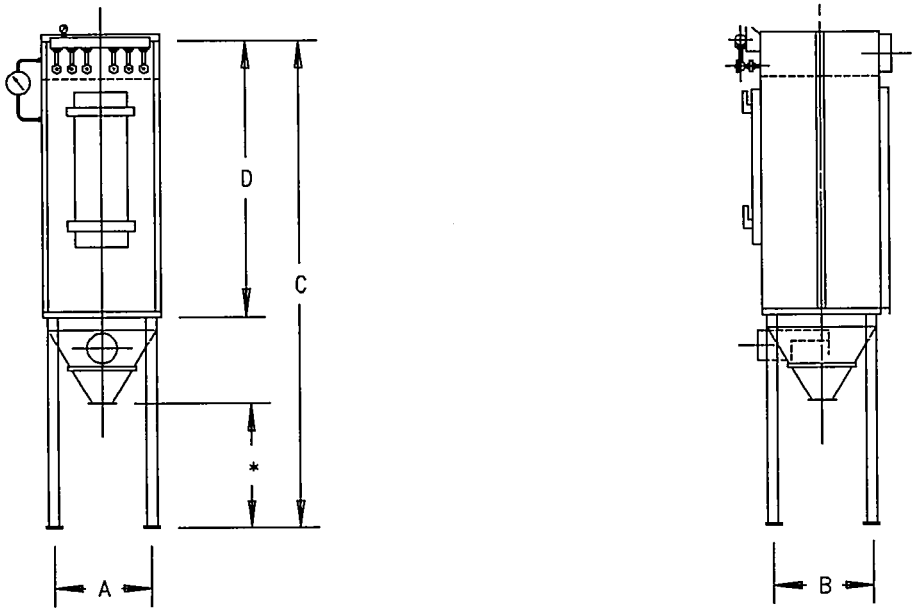
Timer - Solid State, full adjustability of pulse length .05 to .8 seconds and full adjust- ability of interval between pulses .05 to .130 seconds. Nema IV Timer enclosure. Voltage 115/1/60.

*__Options -__ Roof-mounted direct drive fan to 2000 CFM (56.6 cmm) cleanside access through roof-mounted doors.

Accessories - Compressed air header with drain cock. 1 1/2" (38 mm) pulse valve. Magnehelic pressure gauge.

Assembly - Housing completely assembled. Hopper and supports assembled to housing. Timer shipped separately for field installation. Units shipped without bags and cages installed.

Model Size	Filter Area Ft²	Dimensions, Ft. - In.				No. Filter Tubes	Approx. Wt. Lbs.	
		A	B	C	D		Module	Supports
16DS 8	170	2-1/4	2-1/4	15-9-3/4	9-10	16	1080	215
16DA 10	210	2-1/4	2-1/4	17-9-3/4	11-10	16	1326	215
25DS 8	265	2-7-3/4	2-7-3/4	16-3	9-10	25	1400	230
25DS 10	330	2-7-3/4	2-7-3/4	16-3	11-10	25	1865	230
36DS 8	380	3-2-1/4	3-2-1/4	16-8-1/2	9-10	36	1725	250
36DS 10	470	3-2-1/4	3-2-1/4	18-8-1/2	11-10	36	2105	250
64DS 8	670	5-1-3/4	4-3-1/4	18-5	9-10	64	2930	305
64DS 10	840	5-1-3/4	4-3-1/4	20-5	11-10	64	3210	305
80DS 8	835	6-3	5-7-1/2	18-11	10-2	80	3760	1270
80DS 10	1045	6-3	5-7-1/2	20-11	12-2	80	4100	1270
80DS 12	1255	6-3	5-7-1/2	22-11	14-2	80	4510	1270
100DS 8	1045	7-4	5-7-1/2	19-8	10-2	100	4810	1355
100DS 10	1300	7-4	5-7-1/2	21-8	12-2	100	5600	1355
100DS 12	1570	7-4	5-7-1/2	23-8	14-2	100	6180	1355
120DS 8	1250	7-4	6-8-1/2	19-10	10-2	120	5655	1355
120DS 10	1570	7-4	6-8-1/2	21-10	12-2	120	6570	1355
120DS 12	1880	7-4	6-8-1/2	23-10	14-2	120	7235	1355



*4’ 4” 16DS 8 thru 80DS 12

4’ 7” 100DS 8 thru 120DS 12

Series 64DS 8 thru 120DS 12 has bag access aisle with removable internal walkway.

Available with roof-mounted direct-driven fan up to 2500 CFM.

NOTES:

STANDARD PRODUCT GROUP E

ACCESSORY EQUIPMENT

	INDUSTRY CODES
Abrasion Resistant Pipeline Fittings	C, M, PL, P, S, G
Abrasion Pipeline Fittings for the Plastics Industry	PL
Material Level Indicators Models SG-6-D and SG-6-FS (Standard) Models SG-6X-D and SG-6X-FS (Explosion Proof)	C, M, PL, P, S, G
SG-7 Radio Frequency Level Indicator	C, M, PL, P, S, G
Fabricated Accessory Equipment	C, M, PL, P, S, G

INDUSTRY CODES

C = CEMENT
M = MINERALS
PL = PLASTICS
P = POWER
S = STEEL
G = GENERAL

ABRASION RESISTANT PIPELINE FITTINGS

APPLICATION:

FLSmidth's 450 Iron, abrasion-resistant pipeline fittings are ideally suited for pneumatic conveying systems handling abrasive materials. Various configurations are available to suit pipeline layouts. Bend radii are nominally three times pipe diameter.

SPECIFICATION:

Materials of Construction
Fittings are cast throughout their entire thickness with FLSmidth 450, abrasion-resistant cast iron with 475-550 Brinell hardness.

Availability
Fittings are generally available in nominal diameters ranging from 4 inches to 12 inches (100 to 300 mm) in size.

Wearbacks are available as integral castings or replaceable bolted units.

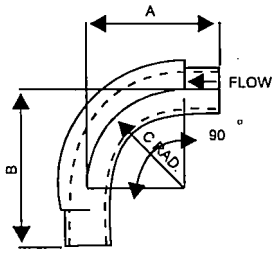
Standard end style is plain end for compression type couplings and/or flanged adapters. Cast flanged ends are also available in certain configurations. Consult availability chart below for standard size and configurations.

Availability Chart

DIA Inches	INTEGRAL WEARBACK							REPLACEABLE WEARBACK			
	90°	60°	45°	30°	22-1/2°	45° Lateral	Tee	90°	60°	45°	45° Lateral
4”	P, F	P	P	P, F	P	P	P, F	P, F	P	P, F	F
5”	P	P	P	N/A	P	N/A	F	P, F	P	N/A	N/A
6”	P, F	P	P, F	P	P, F	P, F	P, F	P	P	P	P
8”	P, F	P, F	P, F	P	P	P	P, F	P	P	P	P
10”	P, F	P	P, F	P	P	P	F	P	P	P	P, F
12”	N/A	N/A	N/A	P	N/A	N/A	N/A	P	N/A	P	F

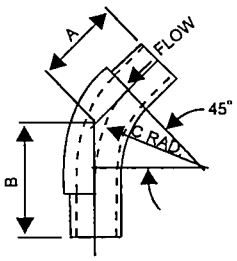
P = plain end F = flanged end N/A = not available as standard

INTEGRAL WEARBACKS (PLAIN ENDS)



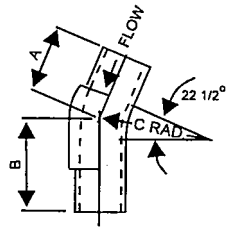
90° Elbow

Dia. (In.)	Dimensions (Inches)			Weight (Lbs.)	Part Number
	A	B	C		
4	17-15/16	24	12	100	170-78-4-1983-90
5	20-7/8	27	14-15/16	155	170-78-4-1983-94
6	24	30-1/8	18-1/8	210	170-78-4-1983-91
8	29-15/16	36-1/16	24	405	170-78-4-1983-92
10	38	46-1/16	29-15/16	660	170-78-4-1983-93



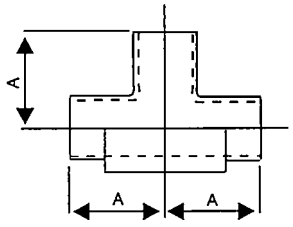
45° Elbow

Dia. (In.)	Dimensions (Inches)			Weight (Lbs.)	Part Number
	A	B	C		
4	13	17	12	90	170-78-4-1981-90
5	14-1/4	18-3/16	14-15/16	122	170-78-4-1981-94
6	15-9/16	19-1/2	18-1/8	155	170-78-4-1981-91
8	18	22	24	280	170-78-4-1981-92
10	23-7/16	28-9/16	29-15/16	470	170-78-4-1981-93



22-1/2° Elbow

Dia. (In.)	Dimensions (Inches)			Weight (Lbs.)	Part Number
	A	B	C		
4	10-7/16	14-3/8	12	60	170-78-4-1979-90
5	11	14-5/16	14-15/16	100	170-78-4-1979-94
6	11-11/16	15-5/8	18-1/8	120	170-78-4-1979-91
8	12-13/16	16-3/4	24	205	170-78-4-1979-92
10	17	22-1/8	29-15/16	345	170-78-4-1979-93



Tee

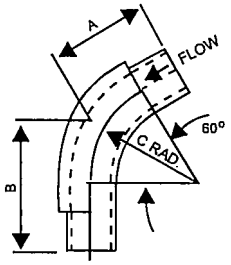
Dia. (In.)	Dimensions (Inches)	Weight (Lbs.)	Part Number
	A		
4	10-1/4	57	170-78-4-1987-90
6	11	103	170-78-4-1987-92
8	12-3/16	176	170-78-4-1987-93

More Diagrams of Integral Wearbacks on following page.

INTEGRAL WEARBACKS (PLAIN ENDS)

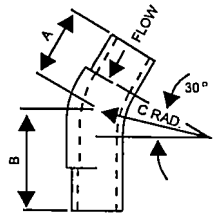
60° Elbow

Dia. (In.)	Dimensions (Inches)			Weight (Lbs.)	Part Number
	A	B	C		
4	15	18-15/16	12	90	170-78-4-1982-90
5	20-11/16	20-5/8	14-15/16	115	170-78-4-1982-94
6	18-1/2	22-7/16	18-1/8	180	170-78-4-1982-91
8	21-15/16	25-7/8	24	335	170-78-4-1982-92
10	28-5/16	33-7/16	29-15/16	530	170-78-4-1982-93



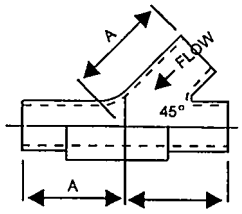
30° Elbow

Dia. (In.)	Dimensions (Inches)			Weight (Lbs.)	Part Number
	A	B	C		
4	11-5/16	15-1/4	12	73	170-78-4-1980-90
6	12-15/16	16-7/8	18-1/8	130	170-78-4-1980-94
8	14-1/2	18-7/16	24	230	170-78-4-1980-91
10	19-1/16	24-3/16	29-15/16	385	170-78-4-1980-92
12	20-11/16	25-13/16	36-1/16	670	170-78-4-1980-93



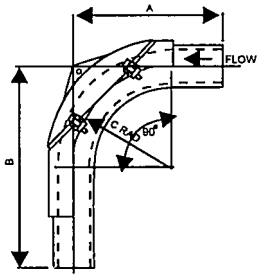
45° Lateral

Dia. (In.)	Dimensions (Inches)	Weight (Lbs.)	Part Number
	A		
4	18-1/8	125	170-78-4-1984-90
6	21-1/16	230	170-78-4-1984-91
8	24	415	170-78-4-1984-92
10	23-15/16	670	170-78-4-1984-93



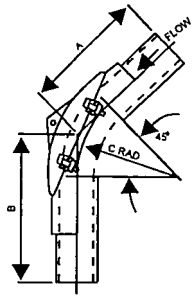
NOTE: Flanged fitting dimensions and part numbers are available on request.

INTEGRAL WEARBACKS (PLAIN ENDS)



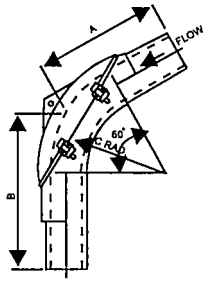
90° Elbow

Dia. (In.)	Dimensions (Inches)			Weight (Lbs.)	Part Number
	A	B	C		
4	17-7/8	23-13/16	12	115	170-78-3-1915-00
5	20-7/8	26-3/4	15	165	170-78-3-2032-00
6	24	29-15/16	18-1/8	220	170-78-3-1998-00
8	29-15/16	35-13/16	24	395	170-78-3-2000-00
10	37-13/16	45-11/16	29-15/16	660	170-78-3-2002-00
12	43-7/8	51-3/4	36-1/16	962	170-78-3-2041-00



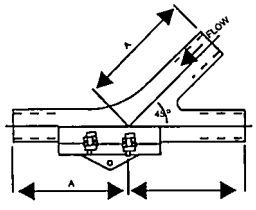
45° Elbow

Dia. (In.)	Dimensions (Inches)			Weight (Lbs.)	Part Number
	A	B	C		
4	14	17-9/16	12	95	170-78-3-2004-00
6	16-9/16	20-1/16	18-1/8	170	170-78-3-2007-00
8	19	22-9/16	24	295	170-78-3-2010-00
10	23-7/16	28-3/16	29-15/16	500	170-78-3-2013-00
12	25-15/16	30-11/16	36-1/16	727	170-78-3-2053-00



60° Elbow

Dia. (In.)	Dimensions (Inches)			Weight (Lbs.)	Part Number
	A	B	C		
4	15-5/8	18-3/4	12	105	170-78-3-2016-00
5	17-5/16	20-7/8	15	165	170-78-3-2035-00
6	19-1/8	22-5/8	18-1/8	205	170-78-3-2017-00
8	22-1/2	26-1/16	24	340	170-78-3-2019-00
10	27-7/8	32-3/16	29-15/16	544	170-78-3-2019-00



45° Lateral

Dia. (In.)	Dimensions (Inches)	Weight (Lbs.)	Part Number
	A		
6	21-1/16	260	170-78-4-1995-00
8	24	455	170-78-4-1996-00
10	29-15/16	720	170-78-4-1997-00

NOTE: Flanged fitting dimensions and part numbers are available on request.

ABRASION RESISTANT FITTINGS FOR PLASTICS INDUSTRY

APPLICATION:

FLSmidth Abrasion Resistant Pipeline Fittings are designed to meet the stringent durability demands required when conveying abrasive polymer materials. FLSmidth has designed a diamond shape interior finish that has consistently proven its ability to resist abrasion and dramatically reduce development of fines and streamers.

FLSmidth Cast Aluminum Pipeline Fittings are ideally suited for pneumatic conveying systems handling plastic pelleted materials. Various configurations available to suit pipeline layout.

Top: FLSmidth Abrasion Resistant Fitting shows no wear after 2 years.

Bottom: Average fitting after 5 months shows patch from wear.

Materials Typically Handled:

- PVC
- Polyethylene
- Polypropylene
- Nylon
- Polyester
- Vinyl Acetate

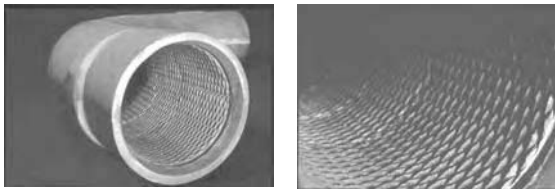
SPECIFICATION:

Fittings are cast of either 356.0 - T6 or SR319.0 - T51 (75-85 BHN). Internal surfaces have a diamond pattern finish proven to reduce wear and streamers. Standard end styles are plain end for compression type reducing couplings, flanged (150 lb. std.) and Victaulic® groove ends available.

Availability:

Sizes: 3", 4", 5", 6", 8", 10", 12" (75 mm, 100 mm, 125 mm, 150 mm, 200 mm, 250 mm, 300 mm)

Bend Angles: 90°, 60°, 45°, 30°

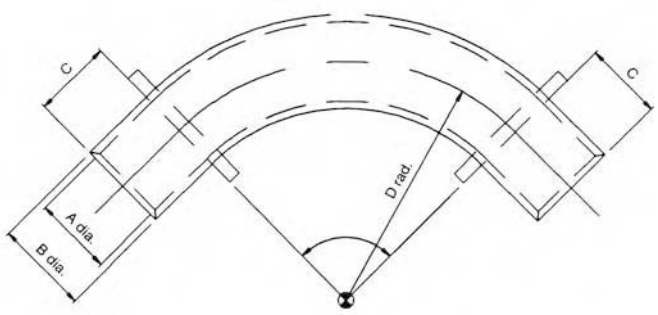


Cast Internal Diamond Finish

FEATURES	BENEFITS
<u>Cast</u> Aluminum Construction	• Increased abrasion resistance due to material hardness yielding longer life and less maintenance
Symmetrical Design	• Permits reversibility for additional wear life
<u>Cast</u> Internal Diamond Finish	• Reduces fines and streamers and ensures complete cleanout
<u>Cast</u> Internal Bevel	• Allows match up of schedule 10 or 40 pipe
3D Bend Radius	• Reduces wear by limiting product impingement points • Low pressure drop
Choice of End Connection Plain, Flanged, Grooved	• To suit plant standards

FLSmidth Abrasion Resistant Pipeline Fittings

Indicates available angles of bend. For dimensional specifications consult tables below.



Angle Θ	A Pipe Size In (mm)	B +/- 1/16 In (mm)	C In (mm)		D In (mm)	Weights Lb. (Kg)		PART NUMBER		
			PE/VE	FE		PE/VE	FE	Plain End (PE)	Victaulic® End (VE)	Flanged End (FE)
30	3 (75)	4 (100)	8 (205)	6 (150)	9 (230)	13 (6)	17 (7)	101-91-4-5588-01	101-93-4-5565-01	101-92-4-5523-01
	4 (100)	5 (125)	8 (205)	6 (150)	12 (305)	18 (8)	24 (11)	-02	-02	-02
	5 (125)	6 (150)	8 (205)	6 (150)	15 (380)	24 (11)	31 (14)	-03	-03	-03
	6 (150)	7 1/8 (180)	8 (205)	6 (150)	18 (460)	35 (16)	47 (21)	-04	-04	-04
	8 (200)	9 1/4 (235)	8 (205)	6 (150)	24 (610)	56 (25)	71 (32)	-05	-05	-05
	10 (250)	11 3/8 (290)	11 (280)	8 (205)	30 (760)	102 (46)	113 (51)	-06	-06	-06
	12 (300)	13 1/2 (343)	11 (280)	8 (205)	36 (915)	144 (65)	162 (74)	-07	-07	-07
45	3 (75)	4 (100)	8 (205)	6 (150)	9 (230)	14 (6)	18 (8)	101-91-4-5587-01	101-93-4-5566-01	101-92-4-5522-01
	4 (100)	5 (125)	8 (205)	6 (150)	12 (305)	22 (10)	28 (13)	-02	-02	-02
	5 (125)	6 (150)	8 (205)	6 (150)	15 (380)	28 (13)	35 (16)	-03	-03	-03
	6 (150)	7 1/8 (180)	8 (205)	6 (150)	18 (460)	41 (19)	53 (24)	-04	-04	-04
	8 (200)	9 1/4 (235)	8 (205)	6 (150)	24 (610)	70 (32)	85 (39)	-05	-05	-05
	10 (250)	11 3/8 (290)	11 (280)	8 (205)	30 (760)	122 (55)	133 (61)	-06	-06	-06
	12 (300)	13 1/2 (343)	11 (280)	8 (205)	36 (915)	142 (64)	160 (73)	-07	-07	-07
60	3 (75)	4 (100)	8 (205)	6 (150)	9 (230)	17 (8)	21 (10)	101-92-4-5507-01	101-93-4-5567-01	101-92-4-5521-01
	4 (100)	5 (125)	8 (205)	6 (150)	12 (305)	24 (11)	30 (14)	-02	-02	-02
	5 (125)	6 (150)	8 (205)	6 (150)	15 (380)	32 (15)	39 (18)	-03	-03	-03
	6 (150)	7 1/8 (180)	8 (205)	6 (150)	18 (460)	47 (21)	59 (27)	-04	-04	-04
	8 (200)	9 1/4 (235)	8 (205)	6 (150)	24 (610)	80 (36)	95 (43)	-05	-05	-05
	10 (250)	11 3/8 (290)	11 (280)	8 (205)	30 (760)	144 (65)	155 (71)	-06	-06	-06
	12 (300)	13 1/2 (343)	11 (280)	8 (205)	36 (915)	210 (95)	228 (104)	-07	-07	-07
90	3 (75)	4 (100)	6 (150)	6 (150)	9 (230)	17 (8)	26 (12)	101-91-4-5586-01	101-93-4-5568-01	101-92-4-5508-01
	4 (100)	5 (125)	6 (150)	6 (150)	12 (305)	25 (11)	34 (15)	-02	-02	-02
	5 (125)	6 (150)	6 (150)	6 (150)	15 (380)	36 (16)	46 (21)	-03	-03	-03
	6 (150)	7 1/8 (180)	6 (150)	6 (150)	18 (460)	55 (25)	71 (32)	-04	-04	-04
	8 (200)	9 1/4 (235)	6 (150)	6 (150)	24 (610)	98 (44)	120 (54)	-05	-05	-05
	10 (250)	11 3/8 (290)	8 (205)	8 (205)	30 (760)	170 (77)	195 (88)	-06	-06	-06
	12 (300)	13 1/2 (343)	8 (205)	8 (205)	36 (915)	254 (115)	290 (132)	-07	-07	-07

® Trademark
Victaulic Corp. of America

MATERIAL LEVEL INDICATOR (BIN SIGNAL)

MODELS SG-6-D & SG-6-FS (Standard)
MODELS SG-6X-D & SG-6X-FS (Explosion Proof)

APPLICATION:

The FLSmidth Material Level Indicator is designed and constructed for sustained operation on indicating the level of fine, pulverized, granular and pelletized materials in bins, silos, and other similar storage containers.

Models SG-6-D & SG-6-FS are U.L. listed for non-hazardous areas.

Models SG-6X-D & SG-6X-FS are U.L. listed for Class I Group C & D (Hazardous Gas) areas and Class II Groups E, F and G (Hazardous Dust) areas.

SPECIFICATION:

General The basic, durable construction of the FLSmidth Material Level Indicator permits sustained continuous operation over long periods of time.

Each material level indicator consists of a head assembly coupled to a paddle shaft arrangement. This simple combination permits quick assembly and easy servicing.

Head Assembly and Motor The head assembly contains a drive motor and electrical circuitry within a cast aluminum housing. When energized, the drive motor rotates a drive shaft and paddle until material restricts the paddle rotation. The motor then rotates around the stopped drive shaft, activates electrical contacts and remains in a stalled position. When the material falls away from the paddle, the paddle begins to rotate and the motor and electrical contacts return to their initial positions.

All head assemblies are equipped with two normally open and two normally closed electrical contacts. The SG-6-FS and SG-6X-FS units ate equipped with fail-safe circuitry to provide notification of power loss, open or shorted motor circuit, or failure of a protected component.

Components within the head assembly can be easily inspected without removing the entire unit.

Paddle Shaft Arrangements A number of paddle shaft arrangements are available in cold rolled carbon and stain- less steel. Vertical lengths in excess of six (6) feet (1829 mm) use a flexible shaft coupling. Standard vertical extensions may be shortened by the customer.

Horizontal units are available with and without protective guard supports to shield the paddle shaft. A stainless steel paddle (7” x 3”) is standard on all applications.

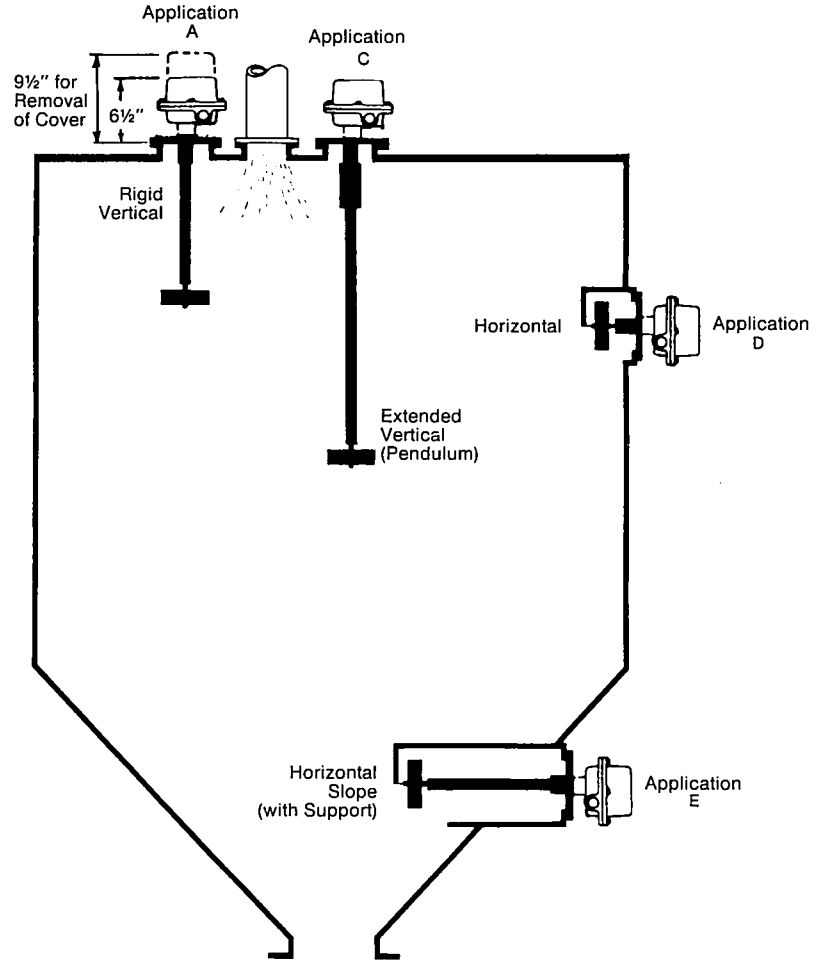
Temperature Application In all application, air temperature surrounding the motor assembly head should not exceed 200º F (93º C).

Pressure Application Models SG-6-D, SG-6-FS, SG-6X-D and SG-6X-FS are designed for maximum operating pressure of 30 PSIG (2.2 Kg/cm^2).

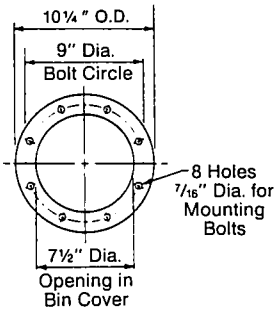
Electrical
Motor: 110V or 220V, 50 or 60 Hz.
Switch Rating: 20 Amp 125, 250 or 480 VAC (Models SG-6-D & SG-6X-D).
Relay Contacts: 20 Amp 120, 240 or 277 VAC (Models SG-6-FS & SG-6X-FS)

MODELS SG-6-D & SG-6-FS (Standard)
MODELS SG-6X-D & SG-6X-FS (Explosion Proof)

TYPICAL APPLICATIONS:



INSTALLATION:



ORDER DATA: To complete a Material Level Indicator for your application specify the following:

Head Assembly Item List

a) Quantity _____
b) Model (SG-6-D, SG-6-GS, SG-6X-D or SG-6X-FS)
c) Voltage (110V or 220V)
d) Part Number _____

Paddle Shaft Item List

a) Quantity _____
b) Application (A through D)
c) Length (standard size only)
d) Part Number _____

MATERIAL LEVEL INDICATOR (BIN SIGNAL)

MODELS SG-6-D & SG-6-FS (Standard)
MODELS SG-6X-D & SG-6X-FS (Explosion Proof)

I. Head Assembly Item List

	Model	Voltage (Single Phase)	Part Number
Weather Tight	SG-6-D	110V	116-85-1-1200-00
		220V	116-85-1-1200-01
	SG-6-FS	110V	116-85-1-1200-08
		220V	116-85-1-1200-09
Explosion Proof	SG-6X-D	110V	116-85-1-1200-04
		220V	116-85-1-1200-05
	SG-6X-FS	110V	116-85-1-1200-10
		220V	116-85-1-1200-11

II. Paddle Shaft Application Item List

Application A - VERTICAL, Right Shaft Guard

Length (feet)	Carbon Steel Part Number	Stainless Steel Part Number
2	116-72-4-1201-06	116-72-4-1201-07
3	116-72-4-1201-08	116-72-4-1201-09
4	116-72-4-1201-00	116-72-4-1201-01
5	116-72-4-1201-02	116-72-4-1201-03
6	116-72-4-1201-04	116-72-4-1201-05

Application C - VERTICAL, Extended Shaft

Length (feet)	Carbon Steel Part Number	Stainless Steel Part Number
7	116-72-4-1201-50	116-72-4-1201-51
8	116-72-4-1201-40	116-72-4-1201-41
9	116-72-4-1201-42	116-72-4-1201-43
10	116-72-4-1201-44	116-72-4-1201-45
11	116-72-4-1201-46	116-72-4-1201-47
12	116-72-4-1201-48	116-72-4-1201-49

Application D - HORIZONTAL, Straight Side of Bin

	Part Number
6 1/2” Carbon Steel with support	116-72-4-1201-62
6 1/2” Stainless Steel without support	116-72-4-1201-61
6 1/2” Stainless Steel with support	116-72-4-1201-63

Application E - HORIZONTAL, Straight or Sloping Side of Bin

	Part Number
15” Carbon Steel without support	116-72-4-1201-70
15” Carbon Steel with support	116-72-4-1201-72
15” Stainless Steel without support	116-72-4-1201-71
15” Stainless Steel with support	116-72-4-1201-73
24” Carbon Steel without support	116-72-4-1201-78
24” Carbon Steel with support	116-72-4-1201-74
24” Stainless Steel without support	116-72-4-1200-74

SG-7 RADIO FREQUENCY LEVEL INDICATOR

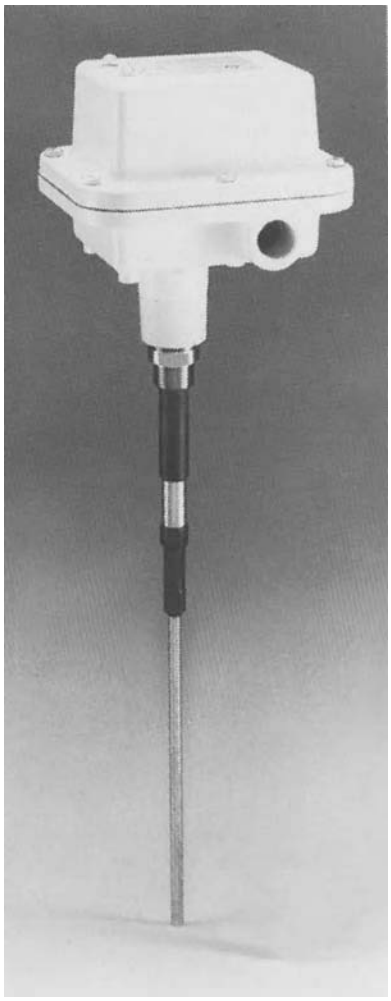
APPLICATION:

FLSmidth's RF (radio frequency) line of Level Indicators accurately detects high or low levels in vessels, tanks, bins or silos.

The SG-7 Level Control senses the material in a vessel by utilizing frequency phase shift technology. The electronics generate a small RF signal on the probe. This alternating sine wave signal is at high frequency in the radio frequency spectrum. The probe acts as one plate of a capacitor, the vessel wall or probe housing as the other capacitor plate.

When no material is in contact with the probe of the SG-7, the dielectric (material between plates) is air. When material touches the probe, the dielectric is the material. All powders that contact the probe cause the amount of probe capacitance to increase when it displaces air. The electronics sense this increased capacitance value and changes the state of the output relay contacts. Results? Accurate measurement and control of your material.

Level Measurement: (high or low)
- Pressure Tanks
- Bins
- Silos
- Vessels

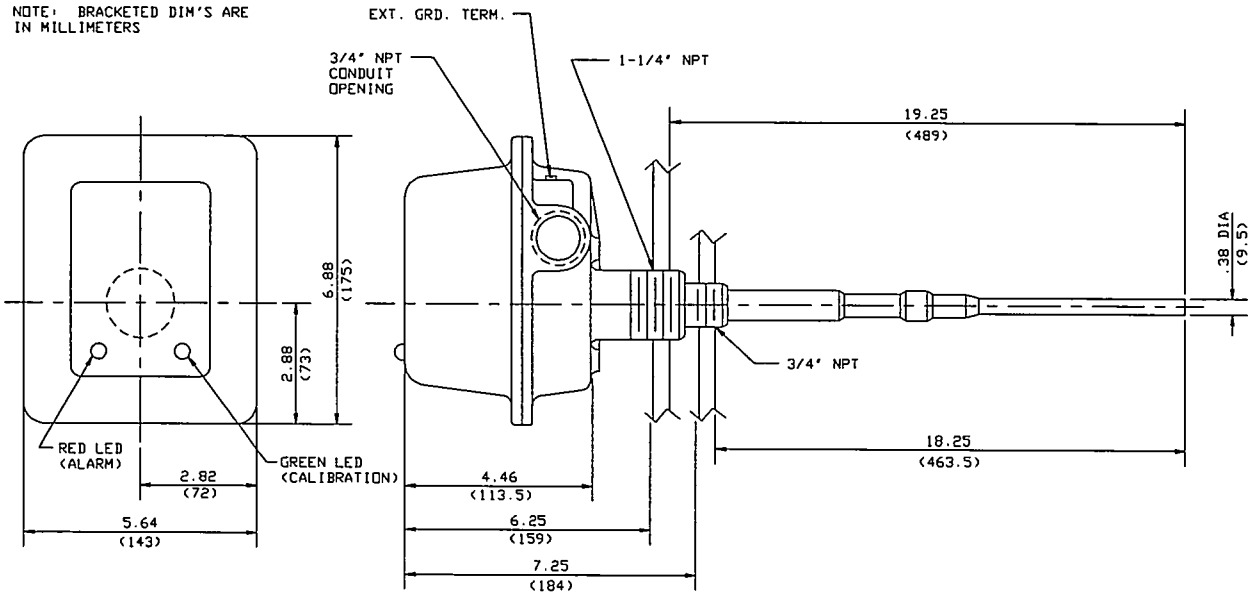


SG-7 Level Indicator

SPECIFICATION:

- 120V AC (±15%), 240 V AC (±15%), 50/60 HZ
- Power – 4 watts
- Output relay – DPDT, 5a at 120 V AC
- Temp. range – -40°F to +160°F, 50 PSIG (3.5 Kg/cm^2) pressure
- Sensitivity settings – dip switch selectable, 1-15 PF
- Time delay – dip switch delectable 1, 2, 4, 7 sec.
- Calibration and test via FOB magnet (external)
- Explosion proof (NEMA 7, 9) or general purpose (NEMA 4/5)
- 3/4" NPT SS or 1 1/4" NPT aluminum mounting
- 18.5" 316 St. Stl. probe, 3/8" thickness

DIMENSIONAL DATA



ORDER DATA:

Model	Part Number	Type	Voltage	Probe Length
SG-7	116-94-4-1200-00	Weather Tight	120 V	18.25”
SG-7	116-94-4-1200-01	Weather Tight	240 V	18.25”
SG-7X	116-94-4-1200-02	Explosion Proof	120 V	18.25”
SG-7X	116-94-4-1200-03	Explosion Proof	240 V	18.25”

OPERATION:

FLSmidth has the capability, expertise and experience to design and supply fabrications for any application.

Choose our standard line of accessories or we'll customize per your specifications.

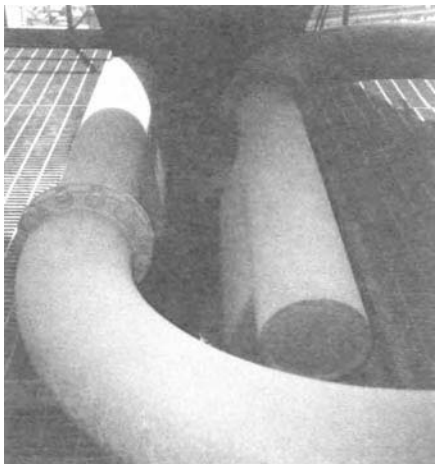
Material Intake Tee

Common materials of construction are:

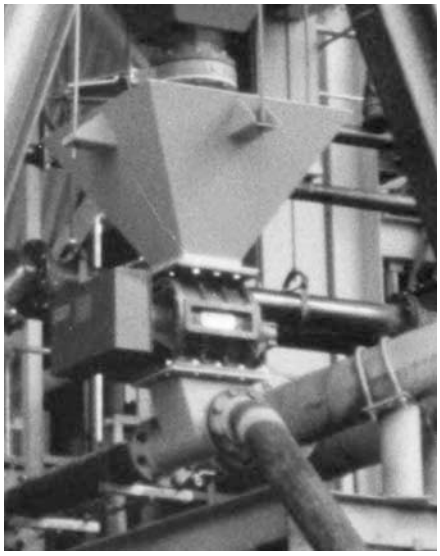
- Aluminum
- Stainless Steel
- Carbon Steel
- Or special materials upon request
- Special abrasion resistant coatings

Typical Accessories:

- Rotary Feeder Fabrications
  - Intake Tees
  - Baffle Plates
  - Vent Hoppers
  - Flow Restrictors
- Pipe Bends (new & replacement)
- Transitions
- Chutes
- Equipment Supports
- Silo Discharge Boxes



Target Box



Vent Hopper

NOTES:

AFTERMARKET PROGRAM

Fuller-Kinyon™ Pumps

Parts and Service

Manheim Warehouse Superstore

Warehouse Map

Fuller-Kinyon Pump Exchange Program

Screws

Seals

Bearing Housing Assemblies

Pneu-Flap™ Torque Controller

Two-Piece Pump Screw

Three-Piece Conversion Kit

Pressurized Bearing Assembly

Pump Screw

Fuller-Kinyon Pump Parts Identification

Ful-Vane™ Compressors

Compressor Exchange Program

Compressor Intake Filters

Compressor Blades Black Velvet™

Compressor Blades - Wear Resistance

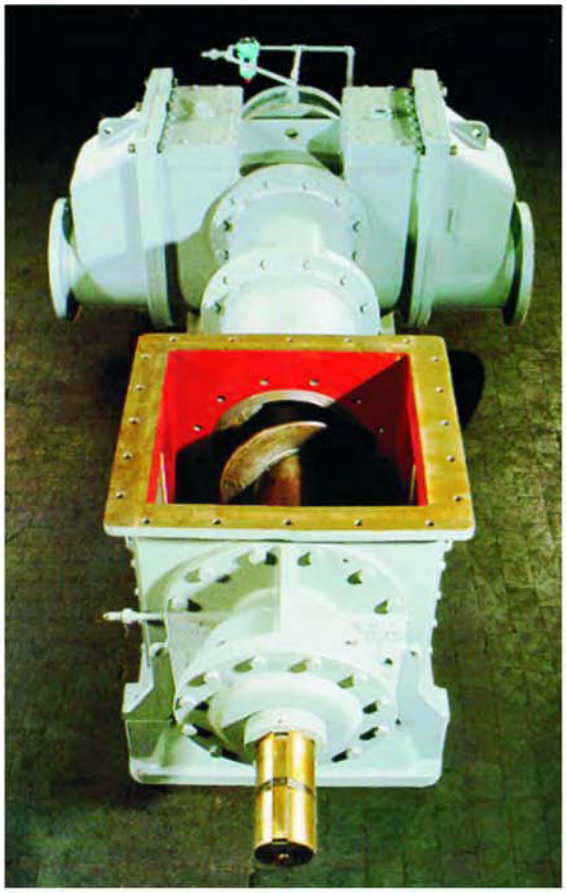
Compressor Blades - Oil Reduction

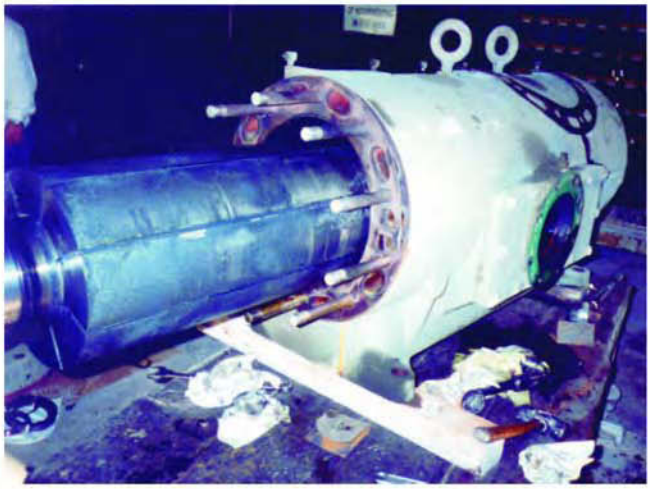
Silver-Carbide™ Compressor Blades

Ful-Lube

Compressor Parts Identification

Reconditioned Product Program





- Field Service
- Rebuilds offsite or onsite
- Training
- Technical support
- Emergency repairs
- Local warehousing of wear parts
- Compressor/Pump Screw exchange program
- World class warranty

Parts, Service and Technical Support

for your Fuller-Kinyon™ Pump and Ful-Vane™ Compressor

Another innovative product from FLSmidth

800-795-6825

www.fls-pt.com

FLSmidth

SF-20

Parts, Service and Technical Support
for your Fuller-Kinyon™ Pump and Ful-Vane™ Compressor

Field Service and Emergency Repairs

Our factory-trained technicians provide on-site assistance to help you repair or troubleshoot your Fuller-Kinyon Pump or Ful-Vane Compressor during an emergency or regularly scheduled maintenance.

Rebuilds offsite or onsite

FLSmidth provides custom rebuilds at your site or at an FLSmidth service center near you. We first disassemble, clean and inspect all components and provide a detailed estimate of anticipated costs. Then, after we receive your authorization, we'll rebuild your machine to factory specifications, using only genuine FLSmidth replacement parts.

Local Warehousing

FLSmidth maintains warehouses in locations all over the country. We stock an extensive inventory of quality Fuller-Kinyon Pump and Ful-Vane Compressors parts available for emergency and non-emergency requirements.

Compressor Exchange Program

FLSmidth maintains a complete inventory of the most commonly used Ful-Vane Compressors in North America. Call and ask us about the details of this program.

Pump Screw Exchange Program

In addition to the compressor program, FLSmidth also offers the Fuller exchange Pump screw. Please contact us to find out how these programs - and the savings - can benefit your company.

Technical Support and Training

FLSmidth has an engineering staff on-hand to assist in any problem-solving required to meet the needs of your operation.
FLSmidth and its service centers are able to provide hands-on and/or classroom training to your maintenance and operations personnel.

World Class Warranty

FLSmidth has the best warranty in the industry for both systems and parts. All FLSmidth Pump and Compressor parts come with a 12/18 month warranty on material and workmanship.

FLSmidth

www.fls-pt.com

Up-to-date addresses of worldwide subsidiaries and sales offices are available from our website

DENMARK

FLSmidth A/S
Vigerslev Allé 77
DK-2500 Valby
Copenhagen
Tel:+45 36 18 10 00
Fax:+45 36 30 18 20

USA

FLSmidth Inc.
2040 Avenue C
Bethlehem, PA 18017-2188
Tel:+1 610-264-6011
Tel:+1 800-523-9482
Fax:+1 610-264-6170
E-mail: info-us@flsmidth.com

INDIA

FLSmidth Ltd.
Capital Towers
180, Kodambakkam High Road
Nungambakkam
Chennai 600 034
Tel:+91 – 44-52 191234
Fax:+91 – 44-2827 9393
E-mail: indiainfo@flsmidth.com

SF-20

The Industry Superstore

Reduce your downtime with FLSmidth!

One-stop shopping at FLSmidth!

- 24/7 emergency break-down service
- 7.5 million dollar inventory
- 5,053 part numbers in stock
- 200,775 parts in stock
- Four domestic warehouses with 1.5 million in inventory
- Customer consignment inventory management programs available
- On-site training
- Technical support
- Rebuilds offsite or onsite
- Emergency repairs
- Local warehousing of wear parts
- World class warranty
- Compressor exchange program
- Pump Screw exchange program

SF-65

Another innovative idea from FLSmidth

800-795-6825

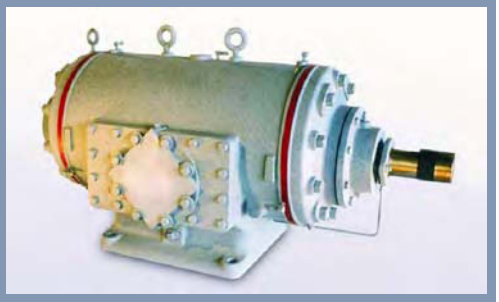
www.fls-pt.com

FLSmidth

Welcome to FLSmidth's Manheim Machining and Distribution Center

Manheim Mission

To provide our customers the best value and continually improve our products, services and have the right parts for our customers.



We look forward to meeting and exceeding your quality and delivery expectations.

Everything you need under one roof

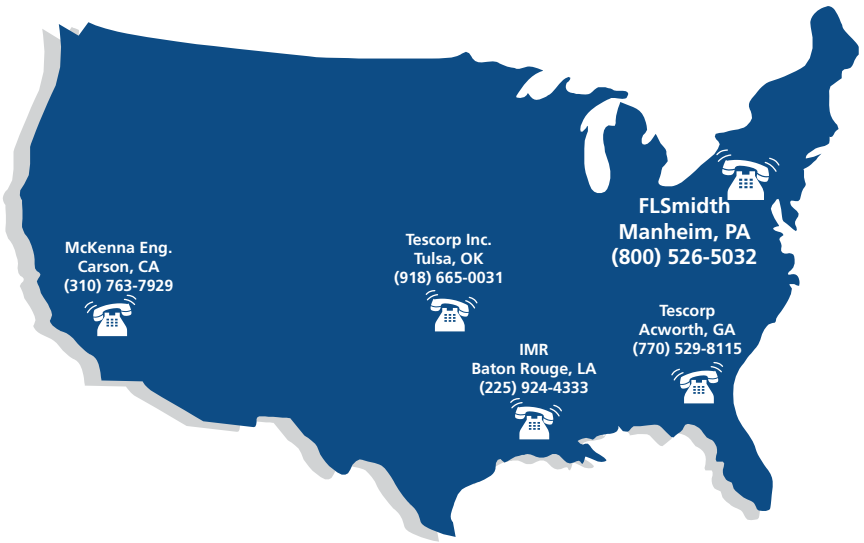
The plant, located in Manheim, Pennsylvania is an ISO 9001-2000 Quality certified manufacturing facility with eight CNC centers and a variety of modern lathes, grinders, boring mills, drill presses and milling machines.

Manheim is a Total Quality Management facility dedicated to exceeding customer expectations, providing quality products and services, on time delivery excellence and ensuring customer satisfaction. The plant uses Just-in-Time inventory practices and MRP to manage the supply chain of 22,000 data base parts for stock and customer orders.

The Manheim facility manufactures the entire Fuller-KinyonTM pump series, rotary-vane compressors, rotary valves, SK diverter valves and feeders. Manheim also fabricates the B3000TM Black Velvet blade (the highest quality and environmentally friendly blade in the world), the "Sahara" an oil-free screw compressor, and thousands of machined parts that support the new and aftermarket sales for FLSmidth customers across the globe. The plant is the main distribution center for the Northeast region and our service centers in:

- Carson, California
- Tulsa, Oklahoma
- Baton Rouge, Louisiana
- Atlanta, Georgia

Manheim has a 24/7 emergency breakdown service for customers, a reconditioning and exchange program and offers on site training for rebuilding pumps and compressors as well as customer consignment inventory management programs.



FLSmidth

Up-to-date addresses of worldwide subsidiaries and sales offices are available from our website

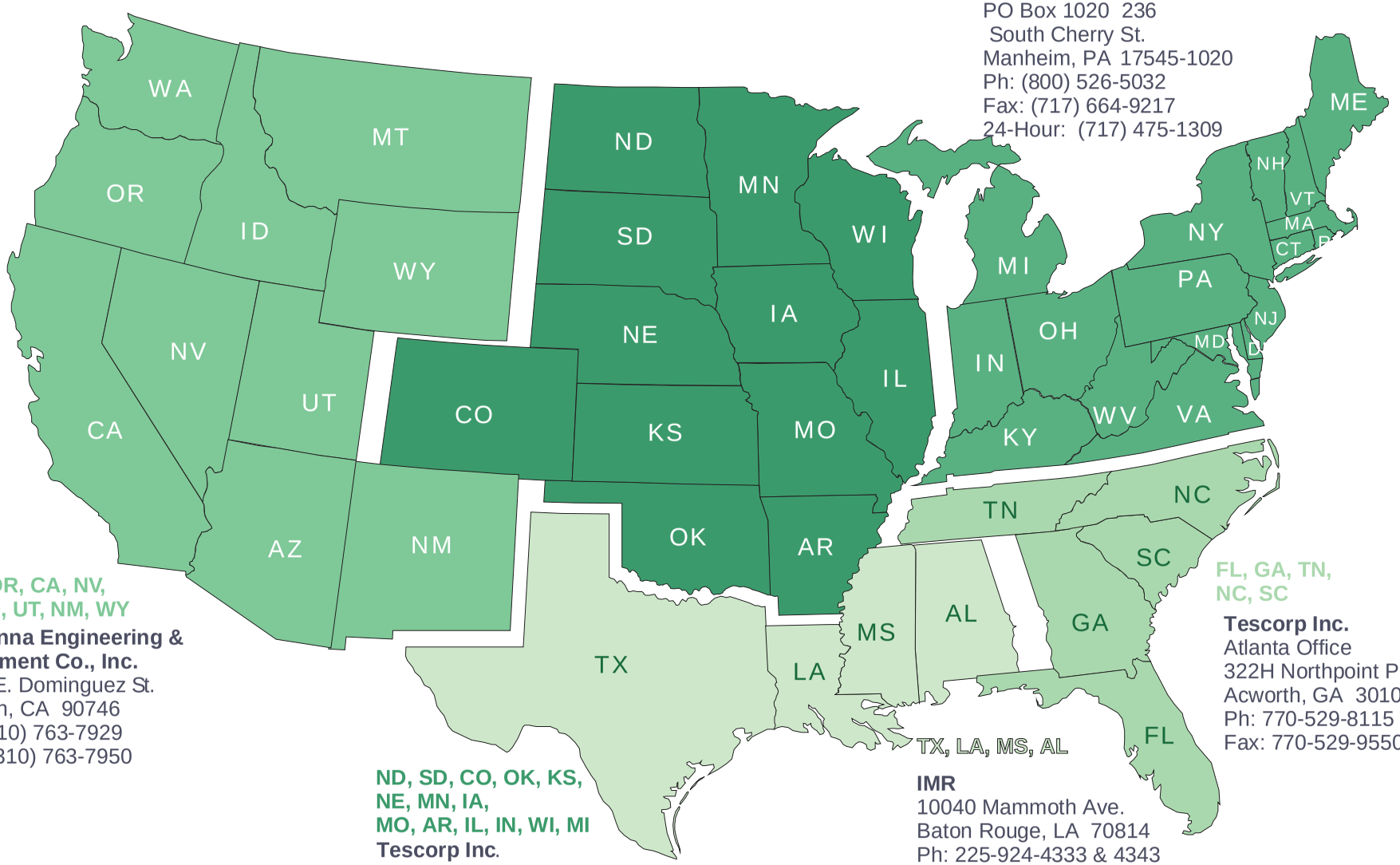
NORMAL BUSINESS HOURS SERVICE and PARTS

FLSMIDTH INC. USA
2040 Avenue C
Bethlehem, PA 18017-2188
Tel:+1610-264-6011
Tel:+1800-523-9482
Fax:+1610-264-6170
E-mail: info-us@flsmidth.com

AFTER HOURS and WEEKENDS SERVICE and PARTS

MANHEIM MACHINING AND DISTRIBUTION CENTER
FLSmidth Inc.
236 South Cherry Street
Manheim, PA 17545-1020
Tel: +1 717-475-1309

FLSmidth Inc. Warehouse Territory Map



ME, VT, NH, MA, RI, CT, NY, PA, NJ, DE, MD, WV, OH, VA, KY, MI, IN

FLS Manheim Plant
PO Box 1020 236
South Cherry St.
Manheim, PA 17545-1020
Ph: (800) 526-5032
Fax: (717) 664-9217
24-Hour: (717) 475-1309

WA, OR, CA, NV, MT, ID, UT, NM, WY

McKenna Engineering & Equipment Co., Inc.
1162 E. Dominguez St.
Carson, CA 90746
Ph: (310) 763-7929
Fax: (310) 763-7950

FL, GA, TN, NC, SC

Tescorp Inc.
Atlanta Office
322H Northpoint Pkwy
Acworth, GA 30102
Ph: 770-529-8115
Fax: 770-529-9550

ND, SD, CO, OK, KS, NE, MN, IA, MO, AR, IL, IN, WI, MI

Tescorp Inc.
Tulsa Office
8525 E. 46th Street
Tulsa, OK 74145
Ph: 918-665-0031
Fax: 918-665-3951

TX, LA, MS, AL

IMR
10040 Mammoth Ave.
Baton Rouge, LA 70814
Ph: 225-924-4333 & 4343
Fax: 225-924-5010

FLSmidth

Rev. 3

FULLER-KINYON PUMP EXCHANGE PROGRAM

APPLICATION: The Fuller-Kinyon Pump Exchange Program is designed to replace normally worn but repairable parts of the F-K pump screws, air-cooled seals and bearing housing assemblies. This program permits the customer to restore the key operating parts of the pump with factory reconditioned and inspected replacements at a fraction of the price of new replacements.

SPECIFICATION:

A) F-K Screws -- a large inventory of popular and standard screw sizes is maintained at our Manheim plant. Consult the available listing to match your requirements. Other sizes may become available throughout the year, so please consult FLSmidth Corporation for these not listed. Each F-K pump exchange screw is completely repaired and dynamically balanced in two planes. The following materials are included:

- New flights and hard surface rod as required
- Spray bronze
- Balancing weights and wheel
- Renewable sleeve and steel pin
- Screw gasket
- One set of balancing hole set screws and weights.
- Drive key.

B) F-K Pump Air-Cooled Seal Assembly -- next to the screw, the air-cooled seal assembly is the second most important part in the F-K pump. It is recommended that either a new or factory rebuilt Exchange Seal Assembly be installed each time a screw change is made to insure correct pump performance. Never replace the graphite ring only.

Exchange Seal Assemblies include graphite ring, O-ring, springs, fan, screw gasket, drive pins, cotter pins, rebuilt seal ring bushing and hopper bushing, the hard-faced insert of which is ground, polished and lapped.

C) F-K Pump Bearing Housing Assembly -- the pump bearing housing should be rebuilt either when a bearing needs replacement or when difficulty is experienced replacing the screw. Problems with Air-Cooled Seal Assemblies can also be attributed to the condition of the Bearing Housing Assembly. Exchange Bearing Housing Assemblies are supplied with new screw bushings, original equipment bearings, new grease retainers and seals. Housing castings which do not comply with bearing cavity specifications are replaced with new castings. When required, two set screws per bearing are added to assure secure holding of bearings in housing cavities.

ORDER DATA:

a) To ascertain whether or not your F-K pump part is repairable and eligible for exchange, check the appropriate inspection criteria checklist provided (none for bearing housing assembly). Avoid shipping scrap or unrepairable units.

b) Contact the nearest FLSmidth district office or sales representative, or call FLSmidth, Bethlehem, PA: 1-800-523-9482.

c) Advise your requirement, indicating the part, size and part number if available. F-K Pump serial number is also required.

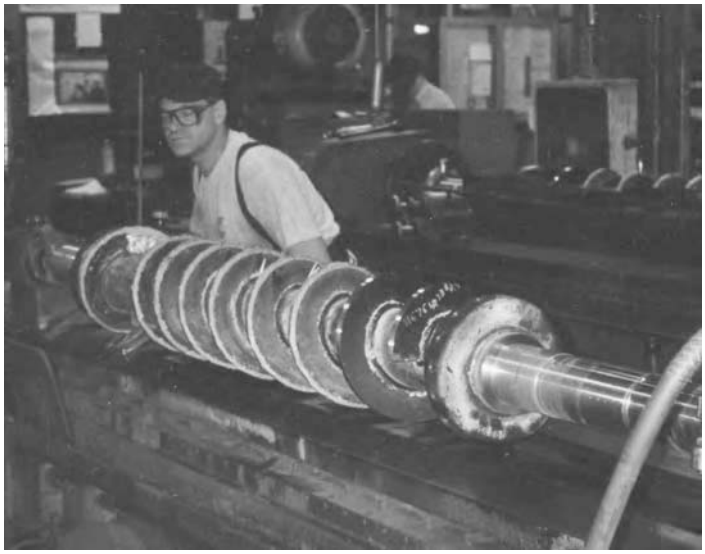
d) Do not return your worn part until you determine that an exchange replacement is available. As soon as your order is placed and confirmation received for an exchange part, your worn part should be **shipped immediately** per shipping instructions to follow. Your assembly will become the property of Fuller Company. An exchange unit will be shipped upon receipt and inspection or immediately depending on stock availability or other prior arrangement.

e) For current prices, consult FLSmidth for the latest Standard Product Price Book. Prices shown are FOB point of shipment, in U.S. currency and subject to change without notice.

EXPERTLY FINISHED AND BALANCED FULLER-KINYON PUMP SCREWS

Gas Welding of Hard Facing

Installing Flights by Arc Welding



Precision Grinding

Two-Plane Dynamic Balancing

SHIPPING INSTRUCTIONS:

a) Mark your shipment with order number, your company name and return address.

b) Ship via **freight prepaid** to FLSmidth Inc., 236 South Cherry Street, **Manheim, PA 17545-1020.**

c) For proper installation, consult the Installation, Operation and Maintenance Instructions provided with your Fuller-Kinyon Pump.

FULLER-KINYON PUMP SCREW INSPECTION CRITERIA

The following standards will allow you to inspect your own pump screw before shipping it back to our Manheim, Pennsylvania factory for exchange. If this criteria is carefully followed you can, in most cases, determine the screw's suitability for repair.

The following areas of wear are the determining factors for economic screw repair.

1 - FLIGHT SECTION -- If the flight base metal is worn under the hardfacing, either on the flight periphery or face, we replace the flight. The thickness of hardfacing on the periphery is approximately 3/8" thick and about 1/8" thick on the flight face. Flights are replaced in one turn (360°) segments. We list the maximum number of flights per screw size that can economically be replace.

A. 5" through 6.6" screws - no more than one flight.
B. 7" through 8.5" screws - no more than two flights.
C. 9" through 10.5" screws - no more than three flights.

If any more flights than listed must be replaced, the screw should be scrapped.

2 - BALANCING HOLES -- We can repair any number of balancing holes that are worn through behind the threaded area. If any one of the balancing holes at the end of the screw is air cut so that more than one-quarter of the threaded area is gone (preventing proper installation of an Allen screw), the pump screw cannot be rebuilt properly.

3 - HOLLOW SCREW CONSTRUCTION -- All hollow screws from 5" through 10.5" size, cannot be rebuilt economically and should, therefore, not be returned. These can be identified also by the lighter weight in comparison to the standard solid shaft screws.

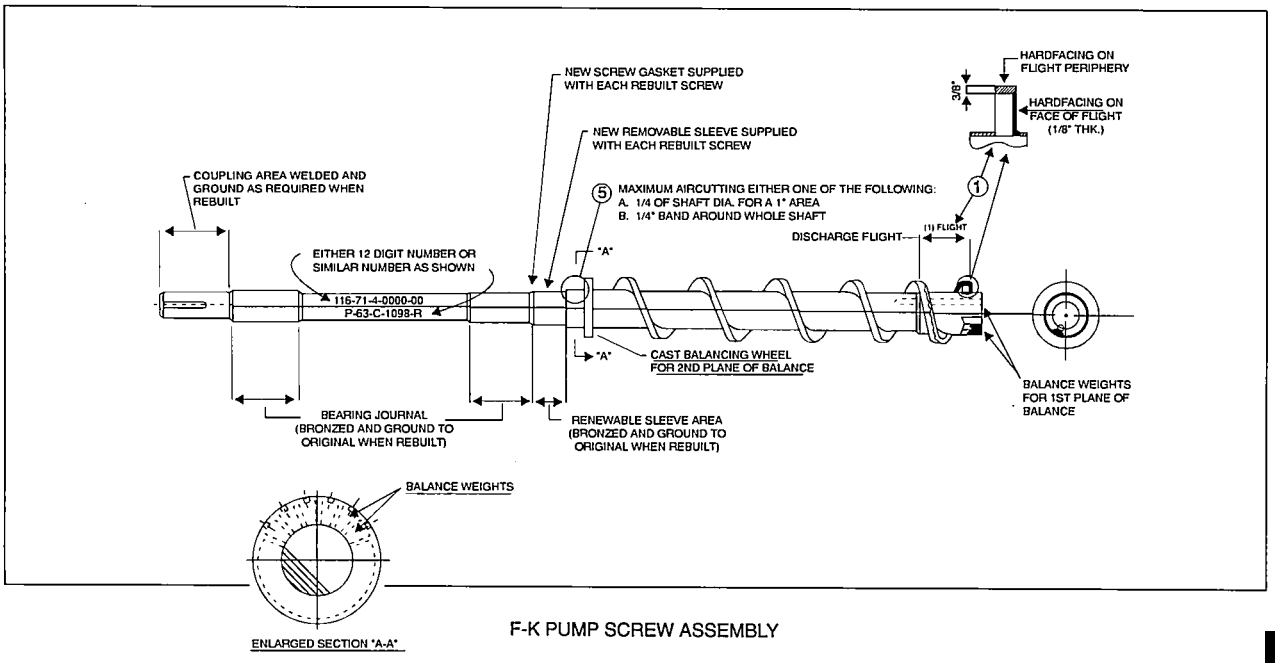
4 - CUT SCREWS -- Screws which had to be cut into two pieces in order to remove them from the pump cannot be repaired.

5 - SHAFT RENEWABLE SLEEVE AREA -- If the shaft area between the renewable sleeve and the first flight is air cut to a depth no greater than 1/4 inch of the shaft diameter for a 1" area, or if a 1/4" deep band is cut around the shaft, the screw is repairable.

6 - HARDFACING APPLICATION -- Most FLSmidth manufactured and Exchange Screws have #6 Colmonoy applied to the face, and Colmonoy HC240 applied to the shaft stub, **only with gas welding**. If hard surfacing is applied with electric welding, it will not be smooth enough on the flight faces for efficient conveying **nor will it bond properly, so it cannot be rebuilt for the Exchange Program** by Fuller Company.

If other types of hardfacing such as Kenface are used, this information will be stamped on the shaft.

Pumps operating at less than 60 percent of rated capacity may experience considerable wear of many of the screw flights all on one side of the screw. If this wear is extreme the screw may be scrap. FLSmidth should be contacted for possible pump resizing.



F-K PUMP SCREW ASSEMBLY

FULLER-KINYON PUMP SCREWS - EXCHANGE & NEW

SIZE & TYPE	PART NUMBER	N*	E**	DRAWING NUMBER	PITCH (INCHES)	WEIGHT (LBS.)
4” H2	116-54-2-1157-	00	80	P-54-B1157	4-1/2 X 3	150
5” H	116-54-2-1158-	00	80	P-54-B1158	6-1/4 X 4	158
5.5” H	116-62-2-0381-	00	80	P-62-B381	6-1/4 X 4	172
6” H	116-54-2-1161-	00	80	P-54-B1161	6-1/4 X 4	172
5-1/2” (K61)	116-61-2-0392-	00	80	P-61-B392	6 X 4	170
5-1/2” (K62)	116-61-3-0265-	00	80	P-61-C265	6 X 4	185
6” (K61)	116-63-2-0626-	00	80	P-63-B626	6 X 4	170
6” (K62)	116-62-3-1280-	00	80	P-62-C1280	6 X 4	190
6.6” H2	116-59-2-0456-	00	80	P-59-B456	6-1/4 X 4	190
7” H2SS	116-60-2-0392-	00	80	P-60-B392	6-1/4 X 4	440
7” H2S	116-54-2-1170-	00	80	P-54-B1170	6-1/4 X 4	440
7” H2	116-54-2-1165-	00	80	P-54-B1165	6-1/4 X 4	440
7” H2	116-71-3-1113-	01	80	116713111301	7-1/2 X 4-3/4	440
8” H2 O	116-78-3-1102-	00	80	116783110200	8-1/2 X 5-1/2	440
8” H2	116-54-2-1171-	00	80	P-54-B1171	6-1/4 X 4	460
8.5” H2	116-59-2-0662-	00	80	P-59-B662	6-1/4 X 4	475
9” H	116-63-3-1077-	00	80	P-63-C1077	6-1/4 X 4-1/4	750
9.5” H	116-64-3-1829-	00	80	P-64-C1829	6-1/4 X 4-1/4	775
10” H	116-63-3-1098-	00	80	P-63-C1098	6-1/4 X 4-1/2	775
10” H O	116-63-3-1090-	00	80	P-63-C1090	10 X 7-1/2	825
10” H O	116-70-4-1107-	00	80	116704110700	8-1/2 X 5-1/2	825
10” H2	116-63-3-1103-	00	80	P-63-C1103	6-1/4 X 4	825
10” H2 O	116-71-4-1111-	00	80	116714111100	8-1/2 X 5-1/2	825
10.5” H O	116-63-3-1108-	00	80	P-63-C1108	10 X 7-1/2	880

***N - DENOTES NEW SCREW** ****E - DENOTES EXCHANGE SCREW** **O - DENOTES DOUBLE DISCHARGE FLIGHT**

Z-FLAP PUMP SCREWS

SIZE	PART NUMBER	PITCH
10” Z	116-85-4-1112-01	6-1/4 X 4-1/2
10” Z	116-85-4-1113-01	8-1/2 X 5-1/2
10” Z	116-86-4-1100-00	10 X 7-1/2
9” HZ	116-84-4-1112-01	6-1/4 X 4-1/4
9.5” HZ	116-86-4-1111-01	6-1/4 X 4-1/4
7” H2SSZ	116-86-4-1106-01	6-1/4 X 4
7”H2Z	116-86-4-1105-01	6-1/4 X 4
7”H2SZ	116-86-4-1107-01	6-1/4 X 4
8” H2Z	116-86-4-1108-01	6-1/4 X 4
8” H2Z	116-87-4-1116-01	8-1/2 X 5-1/2
8.5 H2Z	116-86-4-1109-01	6-1/4 X 4

M PUMP SCREW REPLACEMENT

CONSTANT TO COMPRESSION PITCH CONVERSION

SIZE	PART NUMBER	PITCH	REPLACES	PITCH MM
150M	116-87-4-1105-01	150 X 100	116-78-4-1104-01 116-77-4-1111-01 116-78-4-1103-01	90 100 150
	*116-83-4-1104-01	100 M	No Compression Screw Avail.	
200M	116-87-4-1106-01	110 X 75	116-77-4-1110-01	100
	116-87-4-1107-01	150 X 100	116-77-4-1109-01	140
	116-87-4-1108-01	190 X 120	116-77-4-1106-01 116-78-4-1113-01	160 190
250M	116-87-4-1109-01	140 X 90	116-77-4-1105-01 116-77-4-1107-01	100 140
	116-87-4-1110-01	190 X 120	116-76-4-1106-01 116-76-4-1110-01	160 190
	116-87-4-1111-01	230 X 150	116-78-4-1112-01	220
300M	116-87-4-1112-01	180 X 115	116-77-4-1104-01 116-82-4-1110-01	140 165
	116-87-4-1113-01	220 X 140	116-76-4-1108-01 116-82-4-1107-01	190 220
	116-87-4-1114-01	260 X 165	116-76-4-1107-01	250
	116-87-4-1115-01	300 X 190	116-82-4-1112-01 116-78-4-1115-01	275 300
350M	116-84-4-1101-01	330 X 240	116-83-4-1103-01	330
	116-87-4-1100-01	240 X 165	New	

* SILVER CARBIDE- NO COMPRESSION SCREW AVAILABLE (SPECIAL)

FULLER-KINYON PUMP SEAL INSPECTION CRITERIA

The following Inspection Criteria will allow you to determine whether a seal assembly is suitable for returning to our Manheim, PA, plant for rebuilding.

If either of the following conditions exists, the seal assembly should be scrapped:

A. If cracks appear on the wear plate insert in the hopper bushing.
B. If the wear plate insert in the hopper bushing is worn to a thickness of less than 1/8".

If the seal assembly passes your inspection, be sure to return the seal ring bushing along with the hopper bushing.

FULLER-KINYON PUMP SEAL ASSEMBLIES AIR-COOLED TYPE FOR H & H2 F-K PUMPS

Size	Part Number
4"	116-20-6-6772-00
5", 5.5", 6" & 6.6"	116-20-6-6758-00
7", 8", 8.5"	116-20-6-6767-00
9", 9.5", 10" & 10.5"	116-20-6-6778-00

FULLER-KINYON PUMP BEARING HOUSING ASSEMBLIES

Size	Part Number
4"	116-70-3-0001-00
5" thru 6.6"	116-70-3-0001-01
7" thru 8.5"	116-70-3-0001-02
9" thru 10.5"	116-70-3-0001-03

For H, H2, HZ, H2Z and Kompact™ Pumps

Pump Size	Screw Arrangement	Drawing Number	PDB #	Pitch	Replaces Screw P/N
150M	ONE PC			150 x 100	116944110001
150M	THREE PC	10063638	1251644	150 x 100	116984111101
200M	ONE PC	116-94-4-1112	69399	110 x 75	116944110101
200M	ONE PC			150 x 100	116944110201
200M	ONE PC			190 x 120	116944110301
200M	ONE PC			160	116774110601
200M	THREE PC	116-99-4-1102	157768	190 x 120	116984110801
200M	THREE PC	10063634	1251663	110 x 75	116984111501
200M	THREE PC	10063560	1251654	150 x 100	116984111601
200M	THREE PC	10072523	1346242	190 x 120 Bevel	116944112001
250M	ONE PC	116-96-4-1100	29699	140 x 90	116944110401
250M	ONE PC	116-94-4-1114		190 x 120	116944110501
250M	ONE PC			230 x 150	116944110601
250M	THREE PC	10063834	1251704	140 x 90	116984110601
250M	THREE PC	10063846	1251677	190 x 120	116984111701
250M	THREE PC	10063801	1251676	230 x 150	116984111801
250M	THREE PC	10072739	1346237	140 x 90 Bevel	
300M	ONE PC	116-98-4-1101	89566	180 x 115	116944110701
300M	ONE PC			220 x 140	116944110801
300M	ONE PC	116-01-4-1101 Full Length		260 x 170	116944110901
300M	ONE PC	116-99-4-1104	111856	300 x 190	116944111001
300M	THREE PC	10063851	1251769	180 x 115	116984111001
300M	THREE PC	10063999	1251765	260 x 170	116984111401
300M	THREE PC	10064008	1251775	220 x 140	116984111901
300M	THREE PC	116-00-4-1101	173297	300 x 190	116984112001

For M Pumps

Pump Size	Screw Arrangement	Drawing Number	PDB #	Pitch	Replaces Screw P/N
150M	ONE PC			150 x 100	116944110001
150M	THREE PC	10063638	1251644	150 x 100	116984111101
200M	ONE PC	116-94-4-1112	69399	110 x 75	116944110101
200M	ONE PC			150 x 100	116944110201
200M	ONE PC			190 x 120	116944110301
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250M	ONE PC	116-96-4-1100	29699	140 x 90	116944110401
250M	ONE PC	116-94-4-1114		190 x 120	116944110501
250M	ONE PC			230 x 150	116944110601
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300M	ONE PC	116-01-4-1101 Full Length		260 x 170	116944110901
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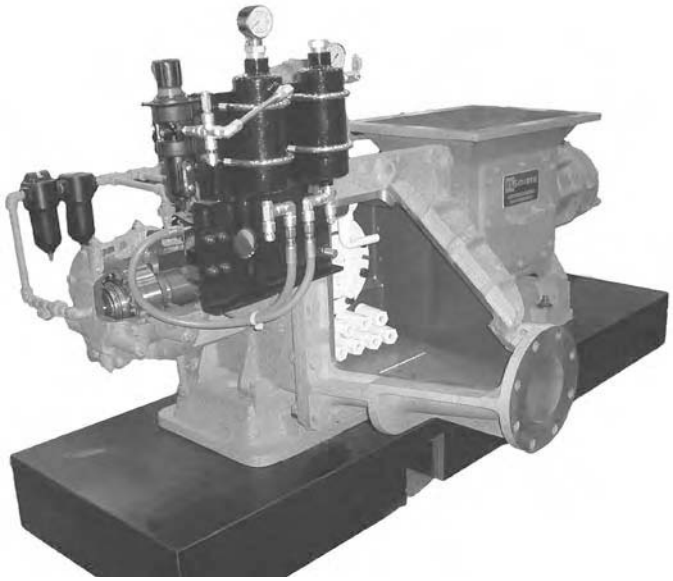
300M	THREE PC	10064008	1251775	220 x 140	116984111901
300M	THREE PC	116-00-4-1101	173297	300 x 190	116984112001

PNEU-FLAP™ PNEUMATIC FLAPPER TORQUE CONTROLLER

APPLICATION:

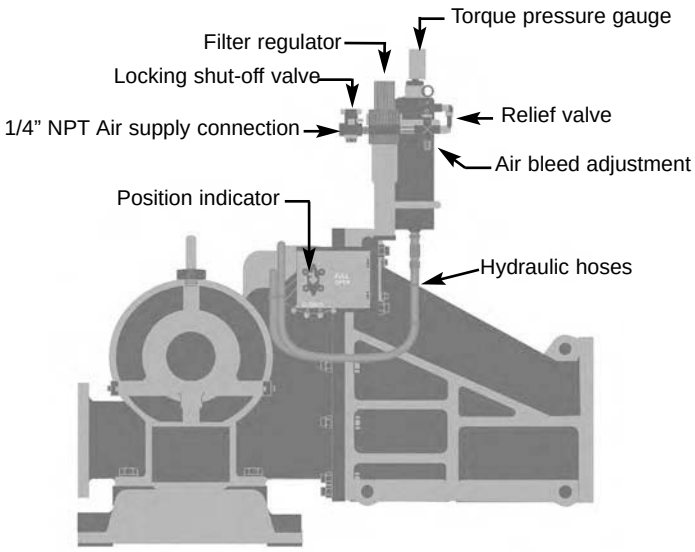
The Pneu-Flap Pneumatic Torque Controller is designed to provide a constant torque through the full range of motion of the pump discharge flapper valve, thereby maintaining a good material seal at all times between the pressurized conveying line and the pump screw. Designed to be easily adjustable for the specific operating conditions, the Pneu-Flap Torque Controller minimizes component wear and improves the Fuller-Kinyon™ M pump performance by optimizing the flapper valve torque.



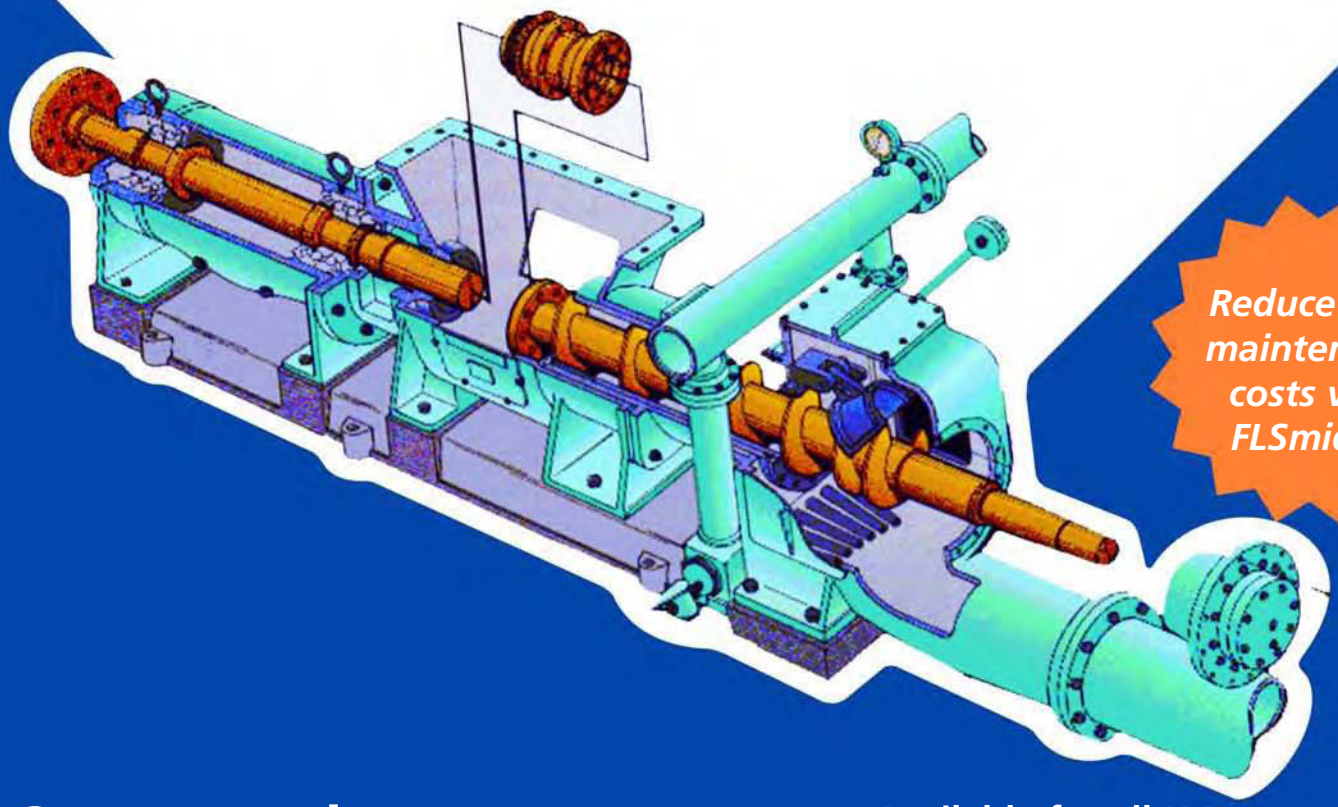
Pneu-Flap Pneumatic Flapper Torque Controller

SPECIFICATION:

- Improved performance and higher capacity
- Reduced wear due to less blow-back through flapper valve
- Reduced overall maintenance cost
- Lower overall power consumption
- On-line adjustment of the flapper valve
- Less movement of the flapper valve
- More stable operation
- Easy to install
- Change materials and torque adjustment without shutting down
- For use on Type M Fuller-Kinyon pumps only



FLSmidth's two-piece pump screw *drastically reduces your maintenance costs!*



Reduce your maintenance costs with FLSmidth!

Our two-piece screw design can reduce your screw flight replacement time to as little as *four man-hours!*

- Available for all H Pumps
- Easy seal replacement
- Does away with screw bushing
- No need to disconnect drive
- Permanent drive shaft increases bearing life
- Fast screw replacement through hopper access

Another innovative product from FLSmidth

800-795-6825

www.fls-pt.com

FLSmidth

SF-05

For FK Pumps H and H2, Z-Flap and Non-Z-Flap 9” through 10.5”

Item No.	Qty	Part Number	Description
1	1	116-95-4-3007-01	Shaft, screw
2	1	116-95-4-3002-01	Seal assembly, air cooled
3	1	116-93-2-3024-01	Collar, hopper bushing
4	1	116-94-2-3027-01	Coupling, screw shaft
5	1	per order	Flight and drive shaft
6	4	040-00-2-3890-00	3/8" - 16 Hex. soc. capscrew x 1 1/4" long
7	12	040-00-4-0005-64	5/8" - 11 Hex. soc. capscrew x 1 1/4" long
8	1	000-02-0-3001-86	Coupling locking assembly
9	2	000-00-6-8660-00	1/4" Sch. 40 pipe nipple 3 1/2" long

Part Number: 116-95-4-0002-00

For FK Pumps H and H2, Z-Flap and Non-Z-Flap 7” through 8.5”

Item No.	Qty	Part Number	Description
1	1	116-95-4-3029-01	Shaft, screw
2	1	116-95-4-3018-01	Seal assembly, air cooled
3	1	116-95-2-3024-01	Collar, hopper bushing
4	1	116-95-2-3027-01	Coupling, screw shaft
5	1	per order	Screw flight assembly
6	4	040-00-2-4170-00	3/8" - 16 Hex. soc. capscrew x 1 1/2" long
7	10	040-00-2-5990-00	1/2" - 13 Hex. soc. capscrew x 1 1/4" long
8	1	000-02-0-3002-96	Coupling locking assembly
9	2	000-02-0-0572-77	1/4" Sch. 40 pipe nipple 2 3/4" long

Part Number: 116-95-4-0004-00

Our Savings Guarantee

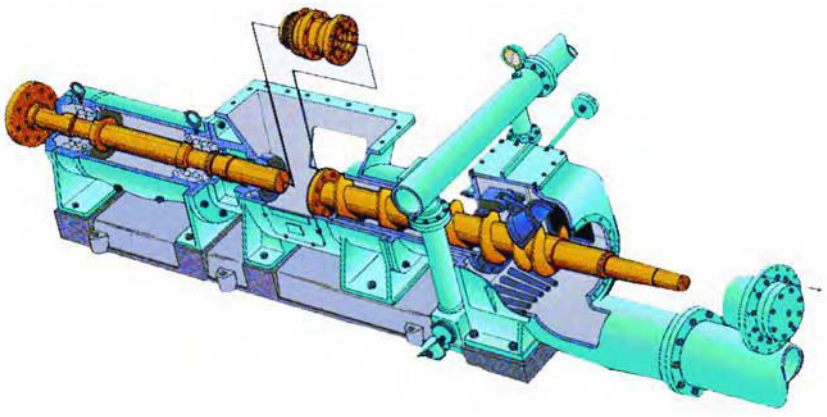
Your screw flight replacement savings will exceed the price of the conversion kit within one year, or we will give you a 20% discount on your next pump screw purchase.

FLSmidth Inc.
2040 Avenue C Bethlehem, PA 18017-2188
Tel: +1 610-264-6055 Tel: +1 800-795-6825
Fax: +1 610-264-6735
www.fls-pt.com

FLS Two-Piece Pump Screw (H-Pump)

Feature	Advantage	Benefit
Easier handling	• Screw flight replacement through hopper	• Reduced seal and/or screw flight replacement time to as little as four (4) man hours
Permanent drive shaft	• Access to seals without removing screw	• Ease of seal replacement by eliminating need to remove screw during seal replacement
	• Eliminates screw bushing	• Lower purchasing cost
	• Avoids need for screw shaft cutting due to shaft binding in screw bushing	• Reduced down time and repair costs to shaft

Quantification based on 8” H2Z FK Pump



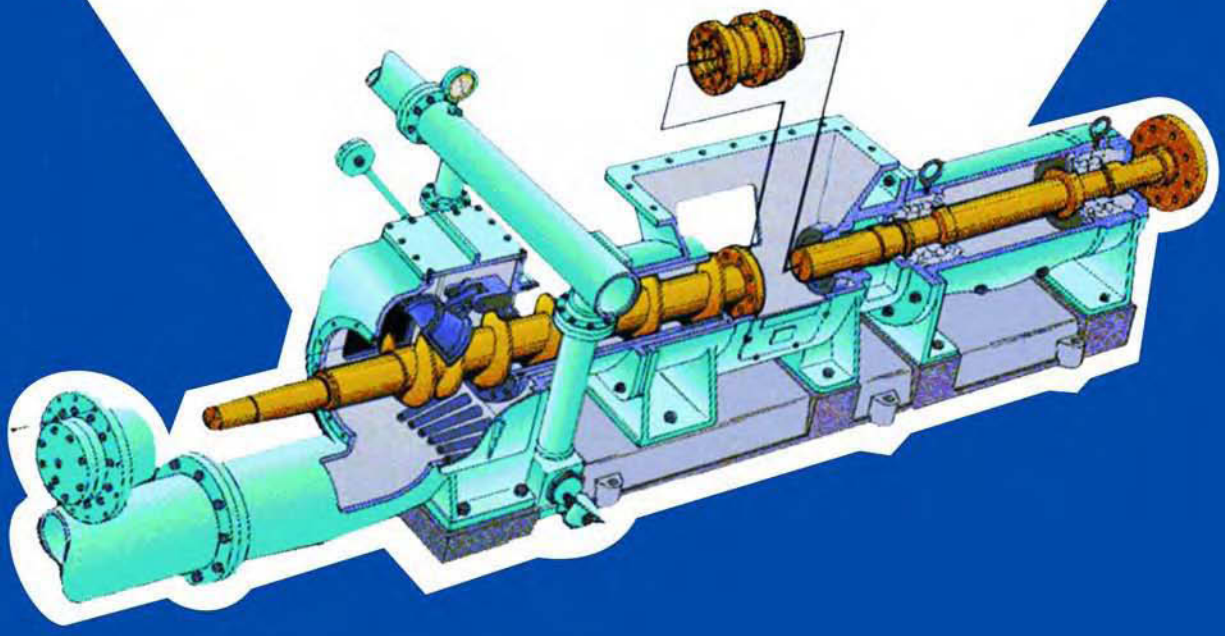
FLSmidth

1-800-795-6825
www.fls-pt.com

Reduce your maintenance costs with FLSmidth!

How is your competition *cutting costs?*

By installing the FLSmidth two piece Z-Flap Conversion Kit



Get the benefits of the *M-Pump* while still using your *H-Pump!*

- ***Reduced maintenance***
- **Longer bearing life**
- **Longer barrel-liner life**
- **Longer screw life**
- **Increases air seal life as much as *4 times***

Another innovative product from FLSmidth

800-795-6825

www.fls-pt.com

FLSmidth

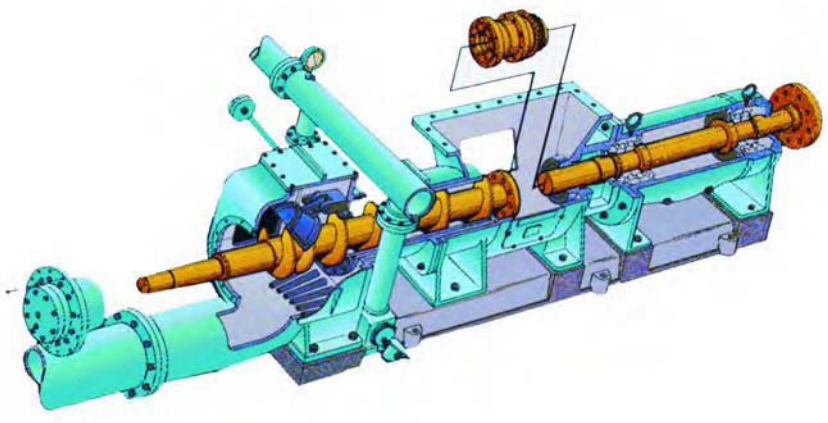
Delivering Dependability.

SF-10

FLS Z-Flap with Two-Piece Pump Screw (H-Pump)

Feature	Advantage	Benefit
Discharge end bearing support	• Maintains balanced operation at all load conditions	• Eliminates screw, barrel liner and seal damages caused by "whip"
Easier handling	• Screw flight replacement through hopper	• Reduced seal and/or screw flight replacement time to as little as four (4) man hours
Permanent drive shaft	• Access to seals without removing screw	• Ease of seal replacement by eliminating need to remove screw during seal replacement
	• Eliminates screw bushing	• Lower purchasing cost
	• Eliminates need for screw shaft cutting due to shaft binding in screw bushing	• Eliminates repair cost and down time caused by shaft cutting

Quantification based on 8" H2Z FK Pump



FLSmidth

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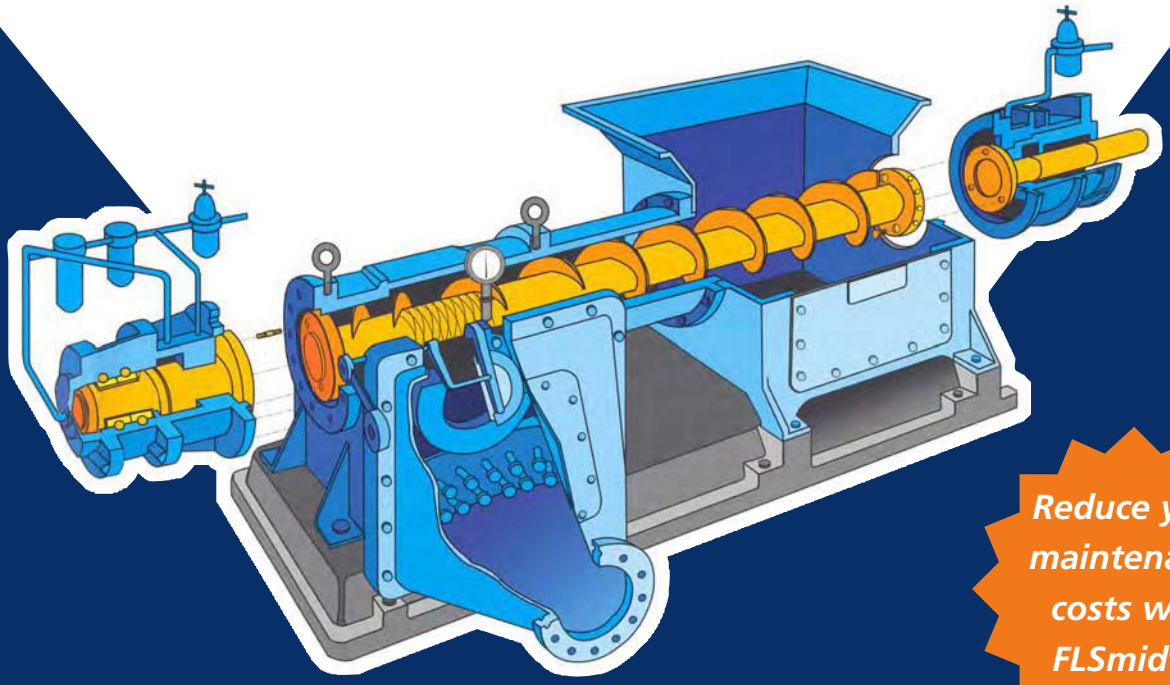
www.fls-pt.com

FLSmidth introduces the M-Pump 3-piece screw.

Significantly reduce your maintenance costs!



Reduce your maintenance costs with FLSmidth!

Simply unbolt the flight section and replace! Reduces maintenance to as little as 4 man-hours!

- No need to disconnect drive
- Flanged drive shaft increases bearing life
- Fast screw replacement through hopper access
- No need to disassemble end shaft or replace bearings
- Reduced risk of contaminating bearings and seals
- Stub shaft, bearing and seals can be removed as assembly housings

Another innovative product from FLSmidth

800-795-6825

www.fls-pt.com

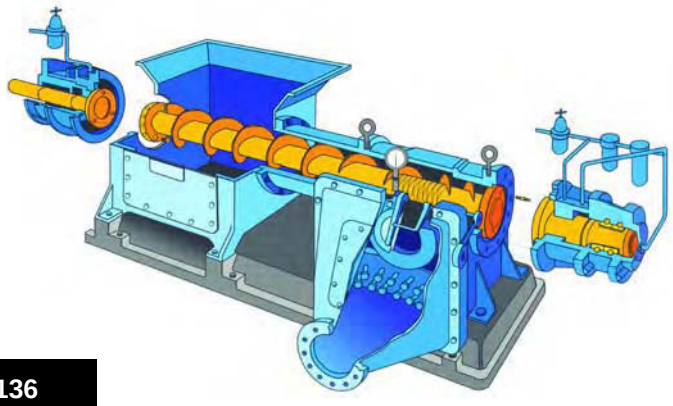
FLSmidth

SF-25

FLS Three-Piece Pump Screw (M-Pump)

Feature	Advantage	Benefit
Flanged drive and discharge stub shafts	• Access to screw flight replacement through hopper without disturbing pump drive	• Reduced flight replacement time to as little as four (4) man hours (MH)
	• Avoids need to intrude on bearing assembly during screw flight removal/replacement	• Eliminates seal damages created during one-piece screw removal
	• Stub shaft, bearing and seals can be removed as assembly housings	• Provides safe alternative to risky "in the field" bearing and seal contamination during field maintenance
		**** Add to the benefit with "HOT SWAP"**

* Quantification based on
300MM Type M Pump w/ 3 pc screw

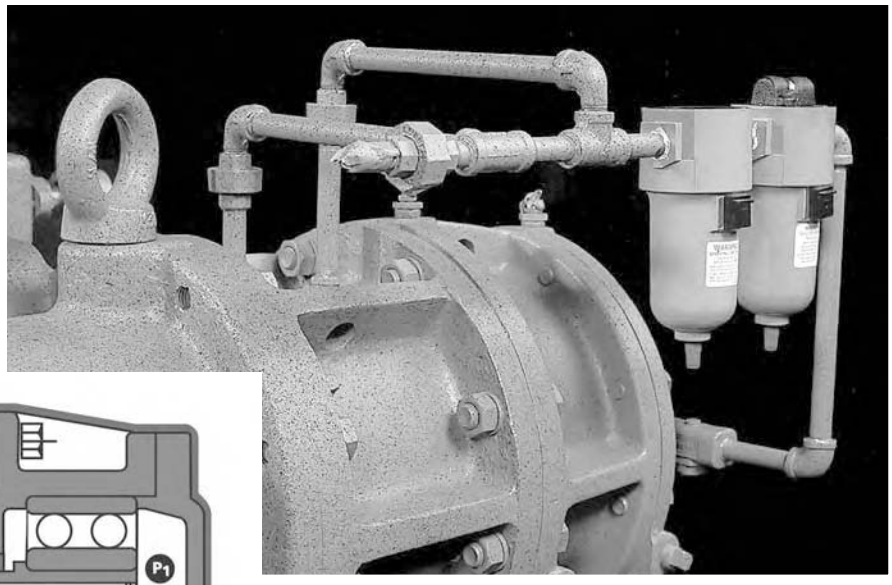


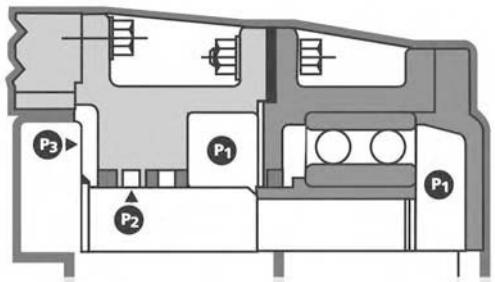
FLSmidth

1-800-795-6825
www.fls-pt.com

Having bearing failures on your *M-Pump?* *Then try the FLSmidth Pressurizied Bearing Assembly*

Reduce your maintenance costs with FLSmidth!





In operation, Pressure (P1) is normally equal to , but never less than, Pressure (P2) which maintains a static condition across the bearing and shaft seal area.

Since Pressure (P2) is always slightly greater than Pressure (P3), there is a continuous air flow which purges the area immediately after the last flight screw.

Prevents material from entering the seal area and damaging the bearing

- Reduces maintenance
- Extends service life
- Reduces downtime

Another innovative product from FLSmidth

800-795-6825

www.fls-pt.com

FLSmidth

SF-35

FLS Pressurized Bearing

Feature	Advantage	Benefit
Positive pressure at seal and bearingsupport	• Improves seal to bearings	• Increased reliability of operation
	• Less seal wear	• Reduced replacement costs
Non-atmospheric housing assembly	• Eliminates exposure to field contaminants	• Eliminates risky bearing exposure to field contaminants

FLSmidth

1-800-795-6825
www.fls-pt.com

Choosing your pump screw?

Compare the difference.

Reduce your maintenance costs with FLSmidth!

Reduce your purchasing costs with FLSmidth!

	FLSmidth Pump Screw	"Non-Engineered" Pump Screw by Others	FLSmidth Benefit
Hardened Flights	5	2	150% more
Side Hard-facing	1/4"	3/16"	33% thicker
Face Hard-facing	1/8"	1/16"	100% thicker
Sleeve	Hardened Steel	Mild Steel	Longer life
Tolerances	Engineered and Factory Certified	Non-Engineered	Reliability
Design	Tighter tolerances give barrel liners, bearings and seals longer life	The lack of reverse flight can contribute to bearing failure	Lower cost of ownership

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Delivering Dependability.

SF-40

FLS Pump Screw

Feature	Advantage	Benefit
Two-plane dynamic balancing to 0.002"	• Less vibration and wear	• Increased screw, bearing, and seal life
Tolerances engineered and factory certified	• Tighter tolerances between screw flight and barrel than non-engineered screws	• Lower cost of operation
150% more hardened flights	• 150% more flights hard-faced	• Longer screw life
Thicker layer of hard-face: 33% more on sides 100% more on face	• Higher wear resistance	• Longer screw life

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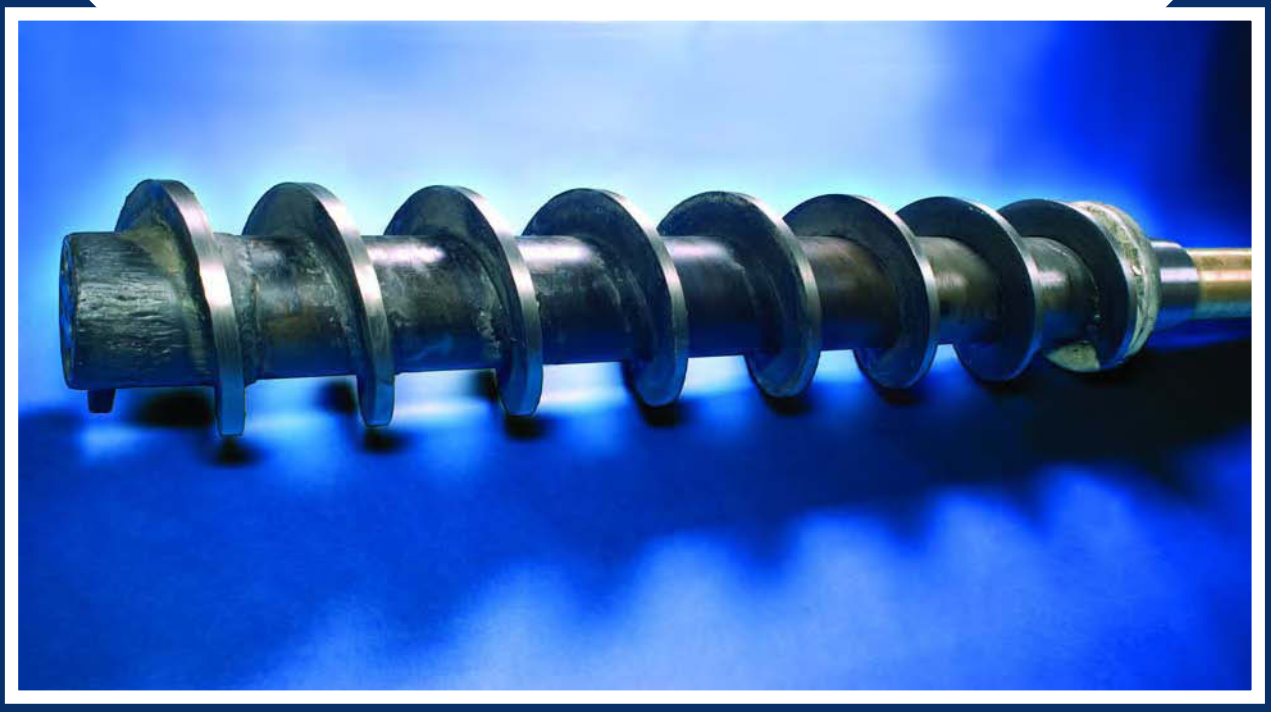
Reduce maintenance costs!

Introducing the new FUL-COAT™ Series SILVER-CARBIDE™ Fuller-Kinyon™ Pump Screw



Extend the life of your Fuller-Kinyon Pump!

- *Tungsten carbide coating extends service life*
- *New application method adds additional wear resistance*
- *Improved durability - longer lasting pump screw*
- *Genuine Fuller™ equipment made by FLSmidth*

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SF-60

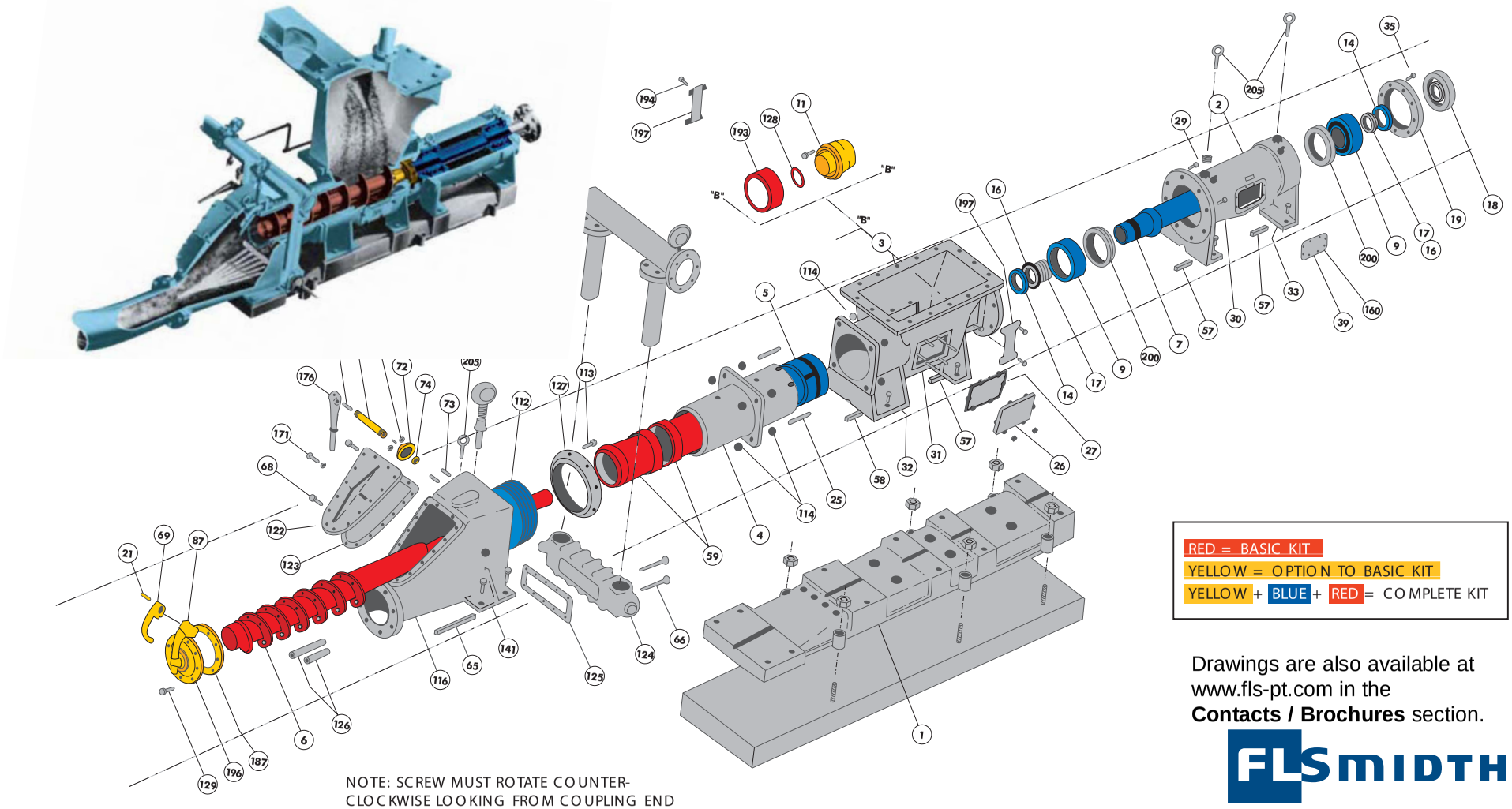
FULLER-KINYON TYPE H PUMP PARTS IDENTIFICATION

ITEM	REQ.	NAME OF PART
1	1	BASE
2	1	BEARING HOUSING
3	1	HOPPER
4	1	BARREL
5	1	BARREL BUSHING
6	1	SCREW
7	1	SCREW BUSHING
9	2	BALL BEARING THRUST BEARING
11	1	SEAL RING ASSEMBLY
14	2	GREASE RETAINER (BRG. COVER & HOPPER)
16	2	LOCKNUT - FAFNIR
17	2	LOCKWASHER - FAFNIR
18	1	DUST SEAL CAP
19	1	BEARING HOUSING COVER
21	2	1/4ÓSQ. KEY 1-1 1/4ÓLG. (BLOWOUT HANDLE & LEVER)
25	4	SEAL ADJUSTING STUD (ASSEMBLE WITH I.114)

ITEM	REQ.	NAME OF PART
26	2	HAND HOLE COVER
27	2	HAND HOLE COVER GASKET
29	4	HEX. HEAD BOLT & H. NUT (HOPPER TO BRG H.)
30	4	HEX. HEAD CAPSCREWS (HOPPER TO BRG H.)
31	12	STUD (HAND HOLE COVER TO COVER)
32	4	HEX. HEAD CAPSCREWS
33	4	HEX. HEAD CAPSCREWS
35	8	HEX. HEAD CAPSCREWS (BRG. COVER TO B.H.)
39	8	3/8ÓX 1/2ÓH.H. CAPSCREWS (COVER PLATE TO B.H.)
57	3	1/2ÓSQ. KEY (BRG. HOUSING & HOP. TO B.)
58	1	1/2ÓSQ. KEY (HOPPER TO BASE)
59	2	BARREL BUSHING
65	1	1/2ÓSQ. KEY - 11ÓLG. (FLAPPER V. BODY TO BASE)
66	10	HEX. HEAD CAPSCREWS (AIR MANIFOLD TO F.V.B.)
68		HEX. HEAD CAPSCREWS (COVER TO F.VALVE BODY)
69	1	BLOWOUT LEVER

ITEM	REQ.	NAME OF PART
71	1	BLOWOUT LEVER SHAFT
72	1	PACKING GLAND (BLOWOUT LEVER)
73	2	PACKING GLAND STUDS
74	2	1/4ÓSQ. PACKING - 4ÓLG. (FOR ITEM 72)
87	4	1/8ÓCOTTER PIN 2ÓLG. (FLAPPER VALVE)
112	3	1/8ÓSQ. PACKING (BBL. PK. GLAND)
113		HEX. HEAD CAPSCREWS (BBL. PK. GLAND TO F.V.)
114	12	JAM NUT (ASSEMBLE WITH ITEM 25)
116	1	FLAPPER VALVE BODY
122	1	COVER (FLAPPER VALVE BODY)
123	1	GASKET (COVER TO FLAPPER VALVE BODY)
124	1	AIR MANIFOLD
125	1	GASKET (AIR MANIFOLD) 1/16ÓASB.
126		AIR NOZZLES
127	1	BARREL PACKING GLAND
128	1	SCREW GASKET

ITEM	REQ.	NAME OF PART
129		HEX. HEAD CAPSCREWS (VALVE SEAT TO BBL.)
141	4	HEX. HEAD CAPSCREWS
160	1	COVER PLATE (BEARING HOUSING)
171	1	11/2ÓEYEBOLT, 1/2ÓSTD. THREAD 1 1/2ÓLG.
176	1	BLOWOUT HANDLE
187	1	GASKET (VALVE SEAT) 1/16ÓASB.
193	1	RENEWABLE SLEEVE (SCREW SHAFT)
194	8	HEX. HEAD CAPSCREWS (SEAL CHAMBER C.)
196	1	FLAPPER VALVE ASSEMBLY
197	2	SEAL CHAMBER COVER
200	2	GREASE RETAINER (BEARING HOUSING)
202	2	5/16ÓSTD. HEX NUT (FOR ITEM 73)
205	3	EYEBOLT



NOTE: SCREW MUST ROTATE COUNTER-CLOCKWISE LOOKING FROM COUPLING END

RED = BASIC KIT
YELLOW = OPTION TO BASIC KIT
YELLOW + BLUE + RED = COMPLETE KIT

Drawings are also available at www.fls-pt.com in the **Contacts / Brochures** section.

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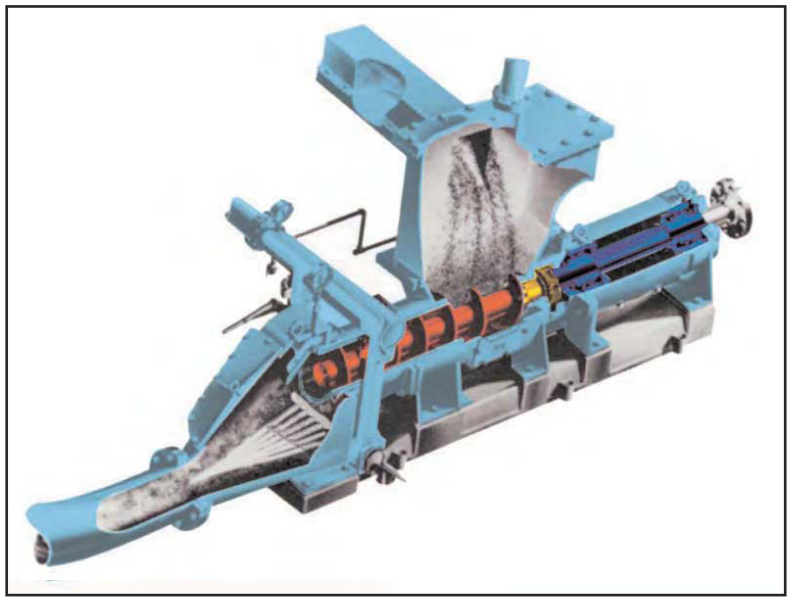
FULLER-KINYON™ TYPE H PUMP w/2 PC SCREW - PARTS IDENTIFICATION

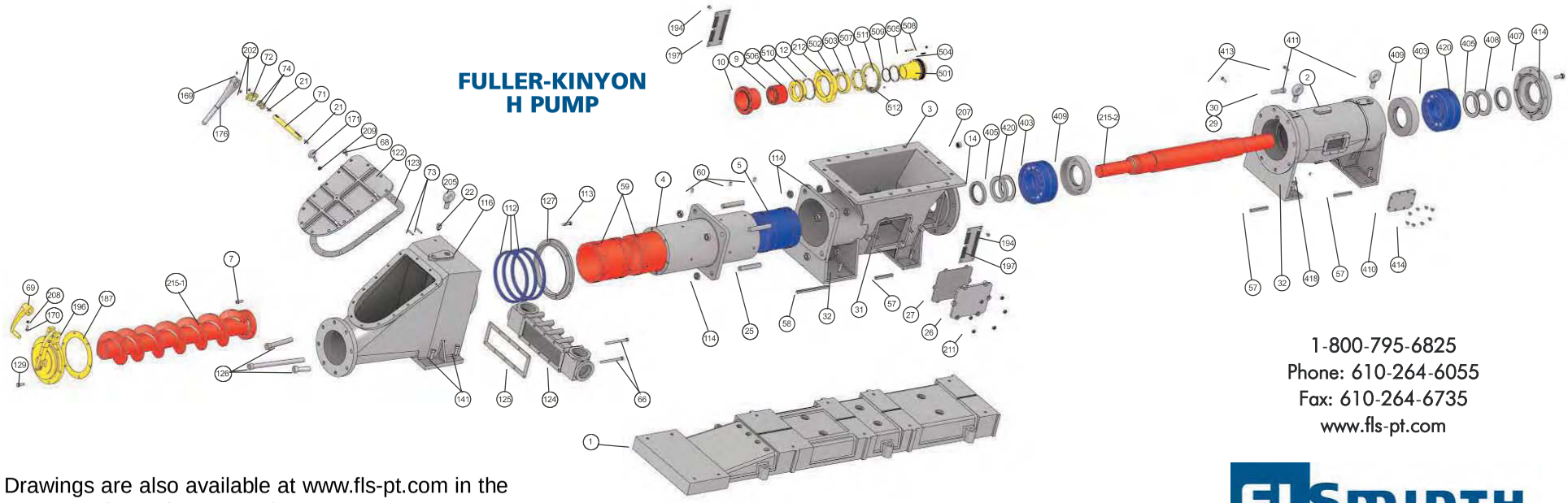


H PUMP PARTS LIST

ITEM #	QTY	DESCRIPTION	ITEM #	QTY	DESCRIPTION	ITEM #	QTY	DESCRIPTION	ITEM #	QTY	DESCRIPTION
1	1	BASE	60	9	SET SCREW	171	1	EYEBOLT	413	2	HEX SOC. SETSCREW
2	1	BEARING HOUSING	66	10	HEX HEAD CAPSCREW	176	1	BLOWOUT HANDLE	414	8	HEXHEAD CAPSCREW
3	1	HOPPER	68	14	HEX HEAD CAPSCREW	187	1	GASKET	415	8	HEXHEAD CAPSCREW
4	1	BARREL	69	1	BLOWOUT LEVER	194	8	HEX HEAD CAPSCREW	418	1	CAPLUG
5	1	BARREL BUSHING - SOFT	71	1	BLOWOUT LEVER SHAFT	196	1	FLAPPER VALVE ASSEMBLY	420	2	LOCKWASHER
7		HEX SOC. CAPSCREW	72	1	PACKING GLAND	197	2	SEAL CHAMBER COVER	501	1	SEAL RING BUSHING #
9	1	COUPLING LOCKING ASSEMBLY	73	2	PACKING GLAND STUDS	202	2	HEX NUT	502	1	SEAL RING # *
10	1	SCREW SHAFT COUPLING	74	2	SQ. PACKING	205	1	EYEBOLT	503	1	SEAL RING BACKING PLATE #
12	1	HOPPER BUSHING COLLAR	112	3	SQ. PACKING	207	4	HEX NUT	504	18	SEAL RING SPRING #
14	1	GREASE RETAINER	113	6	HEX HEAD CAPSCREW	208	1	JAM NUT	505	2	DRIVE PIN # *
21	2	SQ. KEY 1 1/4" LG.	114	12	JAM NUTS	209	1	JAM NUT	506	1	HOPPER BUSHING # *
22	1	GREASE CUP	116	1	FLAPPER VALVE BODY	211	12	HEX NUT	507	1	SPLIT FAN ASSEMBLY #
25	4	SEAL ADJUSTING STUD	122	1	COVER	212	4	HEX SOC. CAPSCREW	508	2	HEX NUT # *
26	2	HAND HOLE COVER	123	1	GASKET	215-1	1	F-K SCREW - DISCHARGE END	509	1	O-RING # *
27	2	HAND HOLE COVER GASKET	124	1	AIR MANIFOLD	215-2	1	F-K SCREW SHAFT - DRIVE END	510	1	O-RING # *
29	4	HEX HEAD BOLT	125	1	GASKET	403	2	DOUBLE ROW BALL BEARING	511	1	O-RING # *
30	4	HEX HEAD CAPSCREW	126		AIR NOZZLE	405	2	LOCKNUT	512	6	HEX SOC. BUTTON CAPSCREW #
31	12	STUD	127	1	BARREL PACKING GLAND	407	1	BEARING HOUSING COVER			
32	8	HEX HEAD CAPSCREW	129	6	HEX HEAD CAPSCREW	408	1	GREASE RETAINER			
57	3	SQ. KEY 5" LG.	141	4	HEX HEAD CAPSCREW	409	2	GREASE RETAINER	Items with # included in Seal Ring Assembly		
58	1	SQ. KEY 9.25" LG.	169	1	SETSCREW	410	1	COVER PLATE	Items with * included in Seal Repair Kit		
59	2	BARREL BUSHING - HARD	170	1	SQ. HD. SETSCREW	411	2	EYEBOLT			

RED: BASIC KIT
YELLOW: OPTION TO BASIC KIT
YELLOW + BLUE + RED = COMPLETE KIT

REMEMBER TO USE THE FK PUMP SERIAL NUMBER WHEN ORDERING PARTS



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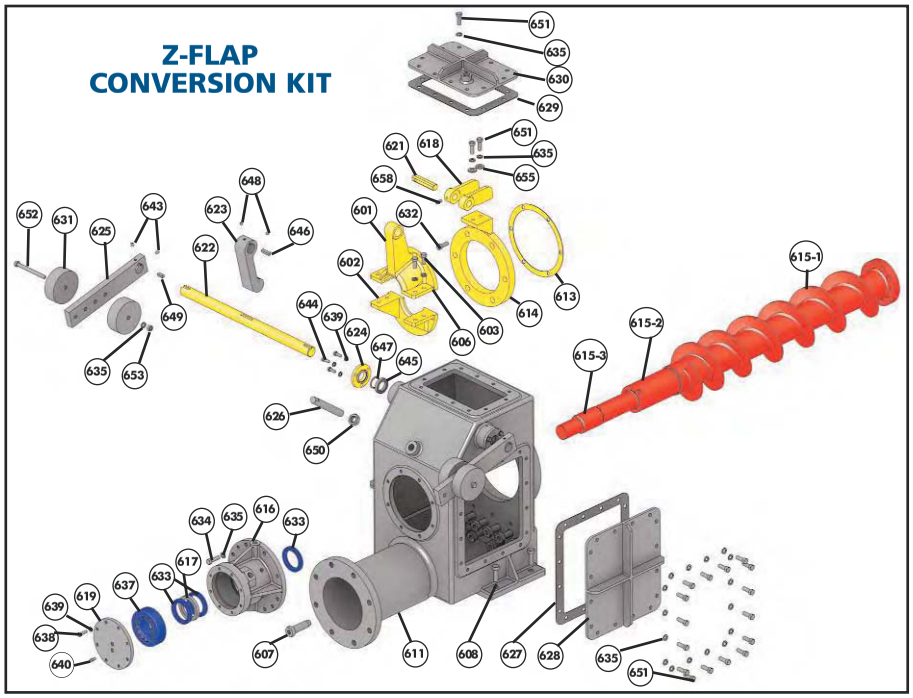
Drawings are also available at www.fls-pt.com in the **Contacts / Brochures** section.

FULLER-KINYON™ TYPE H PUMP w/2 PC SCREW / Z-FLAP - PARTS IDENTIFICATION

Z-FLAP PARTS LIST

ITEM #	QTY	DESCRIPTION
601	1	FLAP VALVE - UPPER HALF
602	1	FLAP VALVE - LOWER HALF
603	4	HEX HEAD CAPSCREW
606	4	LOCKWASHER
607		AIR NOZZLES
608	4	HEX HEAD CAPSCREW
611	1	DISCHARGE HOUSING ASSEMBLY
613	1	FLAP SEAT GASKET
614	1	FLAP SEAT
615-1	1	F-K Z-FLAP SCREW
615-2	1	SLEEVE
615-3	1	WEAR SLEEVE
616	1	BEARING HOUSING
617	1	LANTERN RING
618	1	BRACKET - FLAP VALVE
619	1	BEARING COVER
621	1	FLAP VALVE PIN
622	1	BLOWOUT LEVER SHAFT
623	1	BLOWOUT LEVER
624	2	SEAL PLATE
625	2	COUNTERWEIGHT ARM
626	1	STOP SCREW
627	2	COVER PLATE GASKET (SIDE)
628	2	COVER PLATE (SIDE)
629	1	COVER PLATE GASKET (TOP)
630	1	COVER PLATE (TOP)
631	4	COUNTERWEIGHT
632	6	HEX SOC. CAPSCREW
633	3	RADIAL LIP SEAL
634	8	HEX HEAD CAPSCREW
635	56	HELICAL SPRING LOCKWASHER
637	1	SPHERICAL ROLLER BEARING
638	8	HEX HEAD CAPSCREW
639	14	HELICAL SPRING LOCKWASHER
640	1	PIPE PLUG
643	8	HEX SOC. SETSCREW
644	6	HEX HEAD CAPSCREW
645	2	SHAFT COLLAR
646	1	SQ. KEY
647	2	O-RING / PACKING
648	2	HEX SOC. SETSCREW
649	2	SQ. KEY
650	1	HEX JAM NUT
651	46	HEX HEAD CAPSCREW
652	2	HEX HEAD CAPSCREW
653	2	HEX NUT
655	2	FLAT WASHER
658	1	SOC. SETSCREW

Z-FLAP CONVERSION KIT



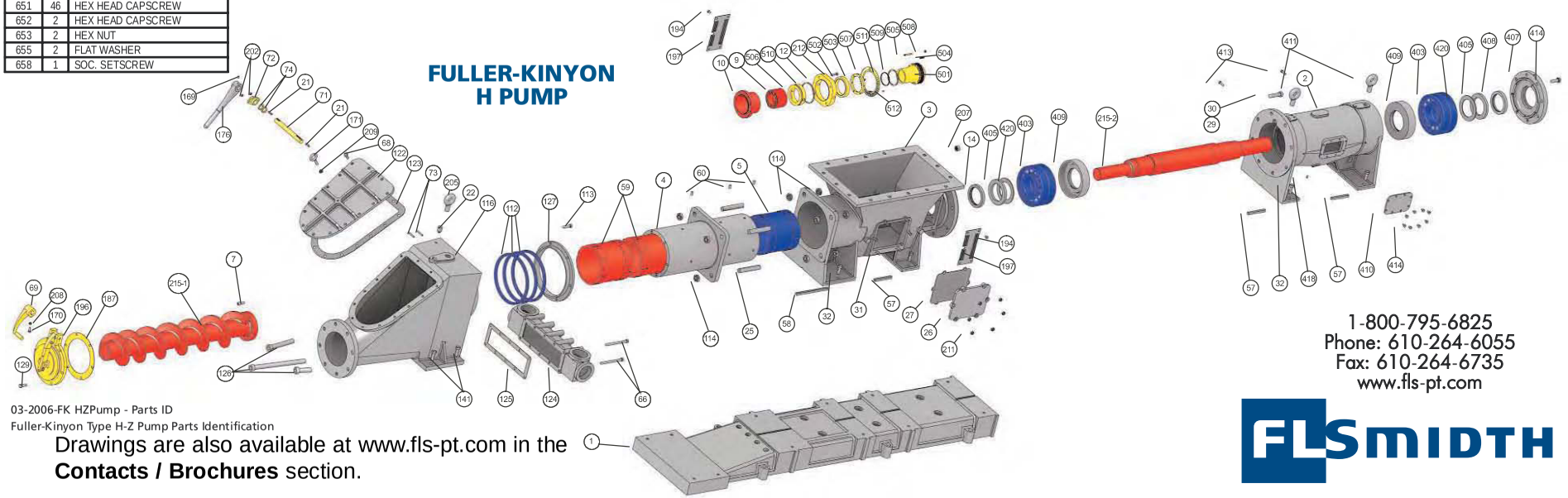
RED: BASIC KIT
YELLOW: OPTION TO BASIC KIT
YELLOW + BLUE + RED = COMPLETE KIT

REMEMBER TO USE THE F-K PUMP SERIAL NUMBER WHEN ORDERING PARTS

H PUMP PARTS LIST

ITEM #	QTY	DESCRIPTION	ITEM #	QTY	DESCRIPTION
1	1	BASE	170	1	SQ. HD. SETSCREW
2	1	BEARING HOUSING	171	1	EYEBOLT
3	1	HOPPER	176	1	BLOWOUT HANDLE
4	1	BARREL	187	1	GASKET
5	1	BARREL BUSHING - SOFT	194	8	HEX HEAD CAPSCREW
7		HEX SOC. CAPSCREW	196	1	FLAPPER VALVE ASSEMBLY
9	1	COUPLING LOCKING ASSEMBLY	197	2	SEAL CHAMBER COVER
10	1	SCREW SHAFT COUPLING	202	2	HEX NUT
12	1	HOPPER BUSHING COLLAR	205	1	EYEBOLT
14	1	GREASE RETAINER	207	4	HEX NUT
21	2	SQ. KEY 1 1/4" LG.	208	1	JAM NUT
22	1	GREASE CUP	209	1	JAM NUT
25	4	SEAL ADJUSTING STUD	211	12	HEX NUT
26	2	HAND HOLE COVER	212	4	HEX SOC. CAPSCREW
27	2	HAND HOLE COVER GASKET	215-1	1	H2 F-K SCREW - DISCHARGE END
29	4	HEX HEAD BOLT	215-2	1	H2 F-K SCREW SHAFT - DRIVE END
30	4	HEX HEAD CAPSCREW	403	2	DOUBLE ROW BALL BEARING
31	12	STUD	405	2	LOCKNUT
32	8	HEX HEAD CAPSCREW	407	1	BEARING HOUSING COVER
57	3	SQ. KEY 5" LG.	408	1	GREASE RETAINER
58	1	SQ. KEY 9.25" LG.	409	2	GREASE RETAINER
59	2	BARREL BUSHING - HARD	410	1	COVER PLATE
60	9	SET SCREW	411	2	EYEBOLT
66	10	HEX HEAD CAPSCREW	413	2	HEX SOC. SETSCREW
68	14	HEX HEAD CAPSCREW	414	8	HEXHEAD CAPSCREW
69	1	BLOWOUT LEVER	415	8	HEXHEAD CAPSCREW
71	1	BLOWOUT LEVER SHAFT	418	1	CAPLUG
72	1	PACKING GLAND	420	2	LOCKWASHER
73	2	PACKING GLAND STUDS	501	1	SEAL RING BUSHING #
74	2	SQ. PACKING	502	1	SEAL RING # *
112	3	SQ. PACKING	503	1	SEAL RING BACKING PLATE #
113	6	HEX HEAD CAPSCREW	504	18	SEAL RING SPRING #
114	12	JAM NUTS	505	2	DRIVE PIN # *
116	1	FLAPPER VALVE BODY	506	1	HOPPER BUSHING # *
122	1	COVER	507	1	SPLIT FAN ASSEMBLY #
123	1	GASKET	508	2	HEX NUT # *
124	1	AIR MANIFOLD	509	1	O-RING # *
125	1	GASKET	510	1	O-RING # *
126		AIR NOZZLE	511	1	O-RING # *
127	1	BARREL PACKING GLAND	512	6	HEX SOC. BUTTON CAPSCREW #
129	6	HEX HEAD CAPSCREW			
141	4	HEX HEAD CAPSCREW	Items with # included in Seal Ring Assembly		
169	1	SETSCREW	Items with * included in Seal Repair Kit		

FULLER-KINYON H PUMP



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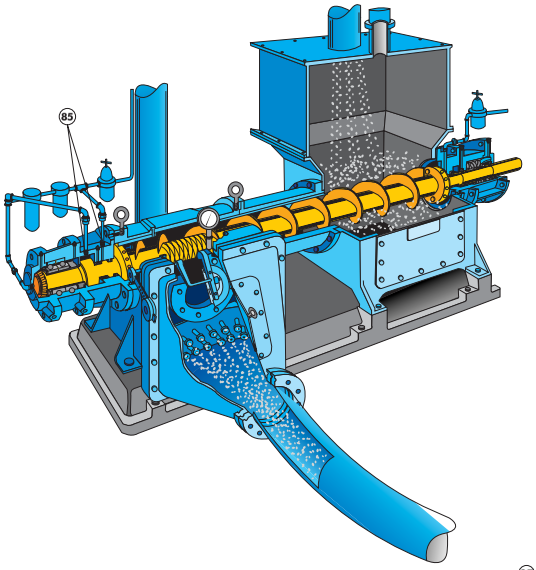
FULLER-KINYON TYPE M PUMP PARTS IDENTIFICATION

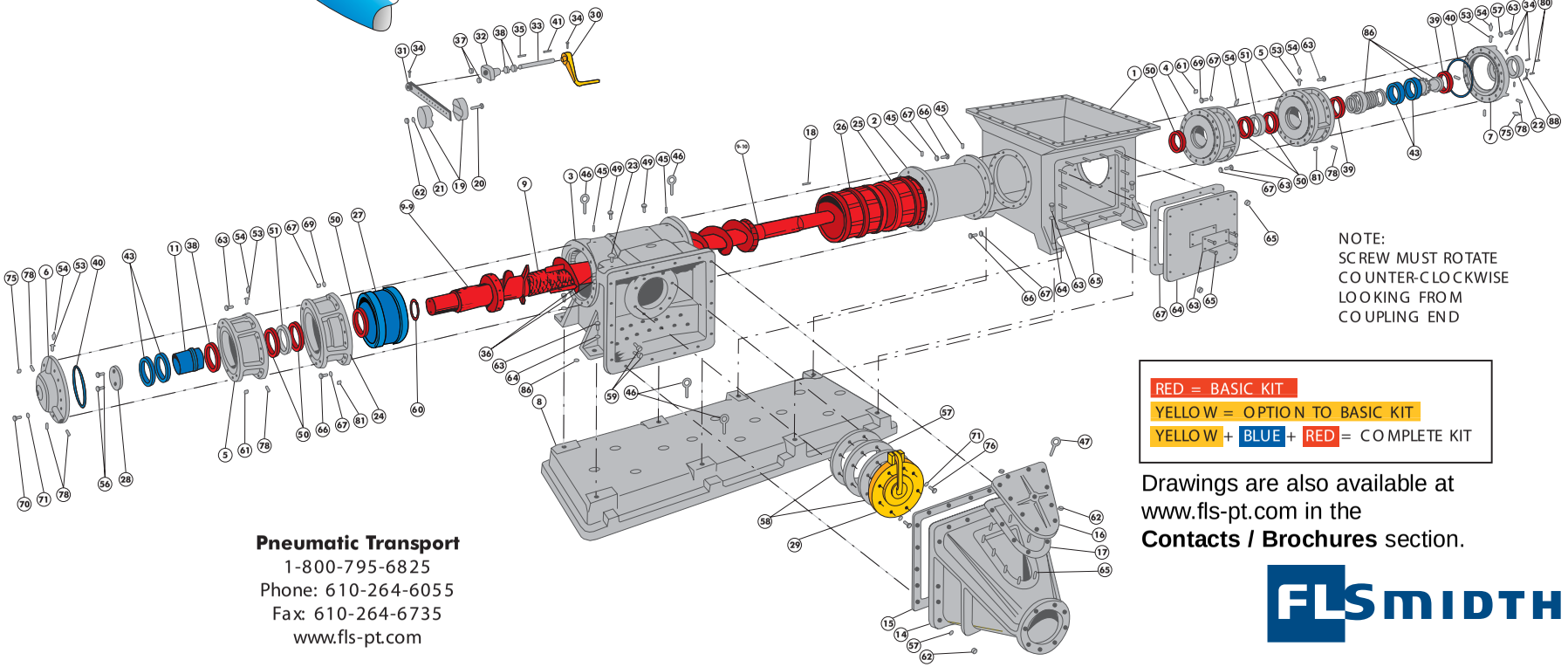


ITEM	REQ	NAME OF PART
1	1	HOPPER
2	1	BARREL
3	1	SIDE DISCHARGE HOUSING
4	1	BEARING HOUSING SUPPORT
5	2	BEARING HOUSING
6	1	BEARING RETAINER
7	1	BEARING RETAINER - DRIVE END
8	1	BASE
9	1	SCREW 9-9 9-10 WEAR SLEEVES
11	1	SCREW BUSHING - DISCHARGE END
12	2	HOPPER COVER
13	2	HOPPER COVER GASKET
14	1	DISCHARGE BODY
15	1	DISCHARGE BODY GASKET
16	1	DISCHARGE BODY COVER
17	1	COVER GASKET
18	1	KEY
19	2	COUNTERWEIGHT
20	1	HEX. HEAD CAPSCREW
21	1	LOCKWASHER
22	1	LOCK COLLAR
23	1	GREASE FITTING
24	1	BEARING HOUSING SUPPORT
25	1	BARREL BUSHING
26	1	BARREL BUSHING

ITEM	REQ	NAME OF PART
27	1	BARREL BUSHING
28	1	BEARING RETAINER
29	1	FLAPPER VALVE ASSEMBLY
30	1	BLOWOUT LEVER
31	1	BLOWOUT HANDLE
32	1	PACKING GLAND
33	1	SHAFT FOR BLOWOUT LEVER
34		SOC. SETSCREWS
35	1	KEY
36	2	STUD
37	2	HEX. NUT
38	2	PACKING
39	3	LIP SEAL
40	2	O-RING
41	1	KEY
43	2	BEARING
45	4	SETSCREWS
46	4	RING BOLT
47	1	RING BOLT
49	2	BARREL BUSHING RETAINER BOLT
50	6	LIP SEAL
51	2	GREASE RING
53	4	REDUCER BUSHING
54	6	GREASE FITTING
56	2	SOCKET HEAD CAPSCREW

ITEM	REQ	NAME OF PART
57	1	SPACER
58	2	GASKET
59	13	AIR NOZZLE
60	1	O-RING
61	3	PIPE PLUG
62		HEX. NUT
63		HEX. HEAD CAPSCREW
64		LOCKWASHER
65		STUD
66		HEX. HEAD CAPSCREW
67		LOCKWASHER
68		HEX. HEAD CAPSCREW
69		HEX. NUT
70		HEX. HEAD CAPSCREW
71		LOCKWASHER
75	2	THREAD PROTECTOR
76		HEX. HEAD CAPSCREW
78		PIPE PLUG
79	1	NAMEPLATE
80	6	DRIVE SCREW
81		THREAD PROTECTOR
85	1	SEE SPECIFIC AIR PIPING DRAWING
86	1	SCREW BUSHING ASSEMBLY
88	1	ROTATION ARROW

REMEMBER TO USE THE SERIAL NUMBER WHEN ORDERING PARTS



NOTE:
SCREW MUST ROTATE
COUNTER-CLOCKWISE
LOOKING FROM
COUPLING END

RED = BASIC KIT
YELLOW = OPTION TO BASIC KIT
YELLOW + BLUE + RED = COMPLETE KIT

Drawings are also available at www.fls-pt.com in the **Contacts / Brochures** section.

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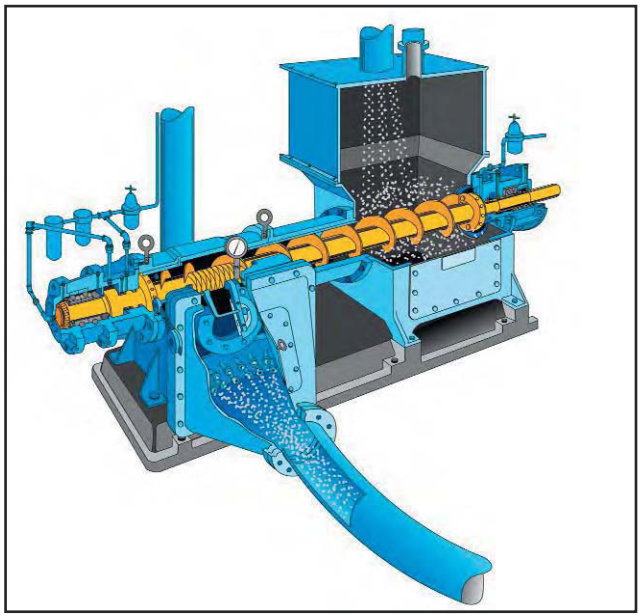
FULLER-KINYON™ TYPE M PUMP w/3 PC SCREW PARTS IDENTIFICATION

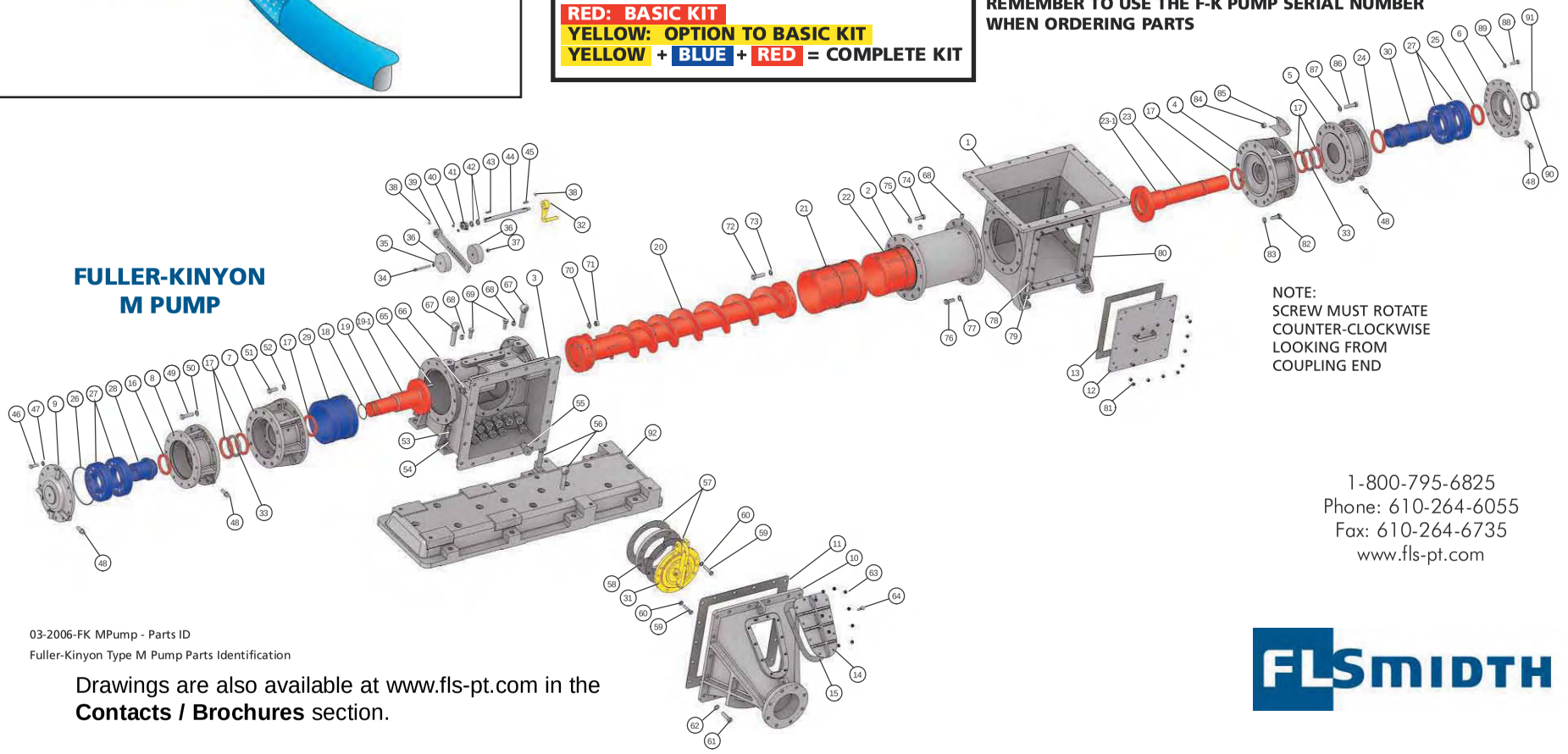


M PUMP PARTS LIST

ITEM	REQ	NAME OF PART	ITEM	REQ	NAME OF PART	ITEM	REQ	NAME OF PART	ITEM	REQ	NAME OF PART
1	1	HOPPER	23-1	1	WEAR SLEEVE	47		LOCKWASHER	70	3	LOCKWASHER - SPECIAL
2	1	BARREL	24	1	LIP SEAL - DRIVE BEARING	48		PIPE PLUG	71	3	HEX. NUT - SPECIAL
3	1	SIDE DISCHARGE HOUSING	25	1	LIP SEAL - DRIVE BEARING	49		HEX. HEAD CAPSCREW	72	3	HEX. HEAD CAPSCREW - SPECIAL
4	1	BEARING HOUSING SUPPORT - DRIVE END	26	2	O-RING	50		LOCKWASHER	73	3	LOCKWASHER - SPECIAL
5	1	BEARING HOUSING - DRIVE END	27	2	BEARING	51		HEX. HEAD CAPSCREW	74		HEX. HEAD CAPSCREW
6	1	BEARING RETAINER - DRIVE END	28	1	SCREW BUSHING ASSY - DISCH END	52		LOCKWASHER	75		LOCKWASHER
7	1	BEARING HOUSING SUPPORT - DISCH. END	29	1	BARREL BUSHING	53		HEX. HEAD CAPSCREW	76		HEX. HEAD CAPSCREW
8	1	BEARING HOUSING - DISCH. END	30	1	SCREW BUSHING ASSY. - DRIVE END	54		LOCKWASHER	77		LOCKWASHER
9	1	BEARING RETAINER - DISCH. END	31	1	FLAPPER VALVE ASSEMBLY	55		AIR NOZZLE	78		HEX. HEAD CAPSCREW
10	1	DISCHARGE BODY	32	1	BLOWOUT LEVER	56	2	RING BOLT	79		LOCKWASHER
11	1	DISCHARGE BODY GASKET	33	2	GREASE RING	57	2	GASKET	80	16	STUD
12	2	HOPPER COVER	34	1	HEX. HEAD CAPSCREW	58	1	SPACER	81	16	HEX. NUT
13	2	HOPPER COVER GASKET	35	1	LOCKWASHER	59		HEX. HEAD CAPSCREW	82		HEX. HEAD CAPSCREW
14	1	DISCHARGE BODY COVER	36	2	COUNTERWEIGHT	60		LOCKWASHER	83		LOCKWASHER
15	1	COVER GASKET	37	1	HEX. NUT	61		HEX. HEAD CAPSCREW	84		HEX. NUT
16	1	LIP SEAL - DISCH. BEARING	38	2	SOC. SETSCREWS	62		LOCKWASHER	85	1	BEARING HOUSING SUPPORT GUARD
17	6	LIP SEAL - SUPPORT HOUSING	39	1	BLOWOUT HANDLE	63		HEX. NUT	86		HEX. HEAD CAPSCREW
18	1	O-RING	40	2	HEX. NUT	64	1	EYE BOLT	87		LOCKWASHER
19	1	DISCHARGE SHAFT	41	1	PACKING GLAND	65	3	STUD - SPECIAL	88		HEX. HEAD CAPSCREW
19-1	1	WEAR SLEEVE	42	2	PACKING	66	2	STUD	89		LOCKWASHER
20	1	SCREW	43	1	KEY	67	2	RING BOLT	90	1	BEARING LOCKWASHER
21	1	BARREL BUSHING - HARD	44	1	SHAFT FOR BLOWOUT LEVER	68	4	SETSCREWS	91	1	BEARING LOCKNUT
22	1	BARREL BUSHING - SOFT	45	1	KEY	69	2	BARREL BUSHING RETAINER BOLT	92	1	BASE
23	1	DRIVE SHAFT	46		HEX. HEAD CAPSCREW						

RED: BASIC KIT
YELLOW: OPTION TO BASIC KIT
YELLOW + BLUE + RED = COMPLETE KIT

REMEMBER TO USE THE F-K PUMP SERIAL NUMBER WHEN ORDERING PARTS



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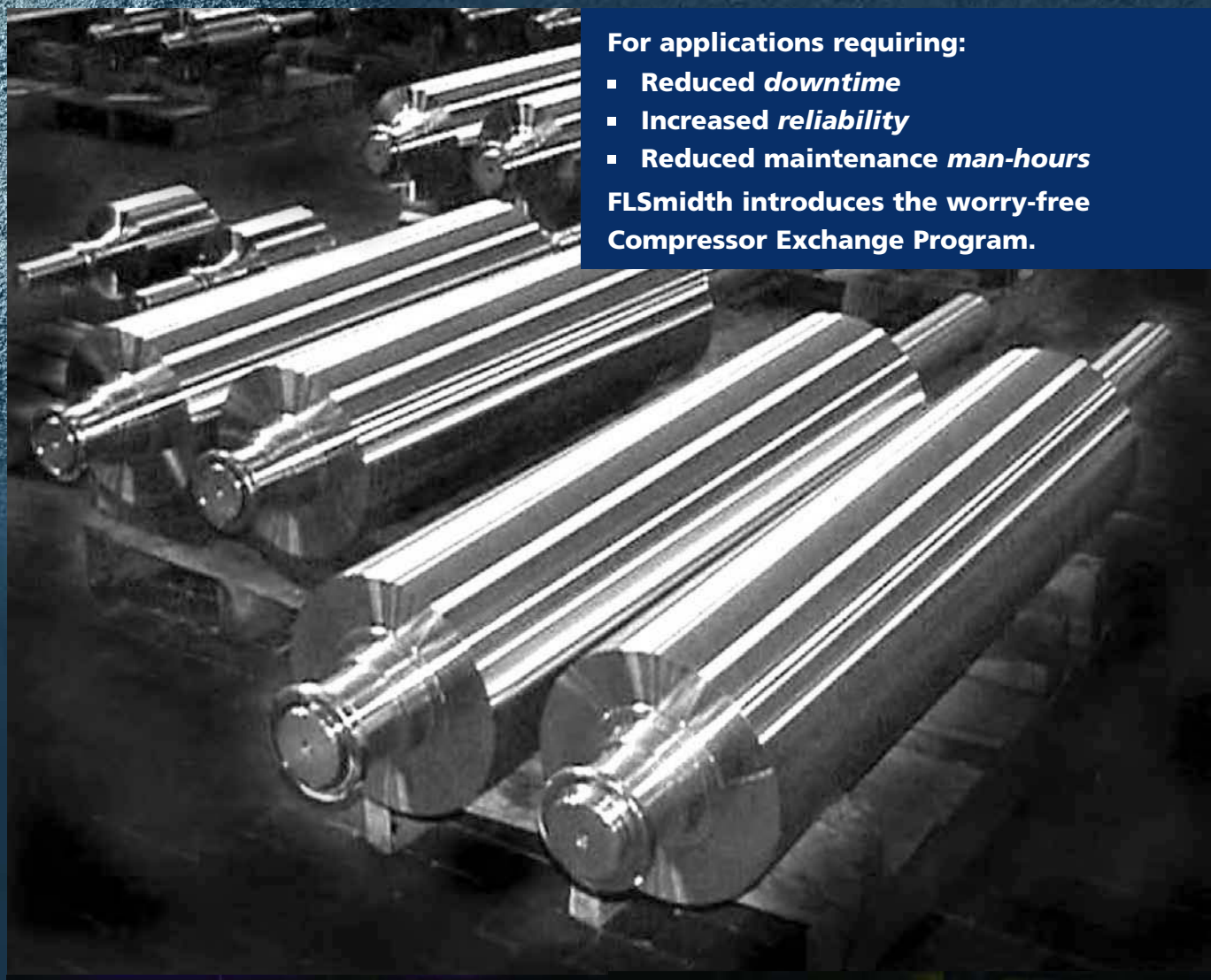
03-2006-FK MPump - Parts ID
Fuller-Kinyon Type M Pump Parts Identification

Drawings are also available at www.fls-pt.com in the **Contacts / Brochures** section.

FLSmidth

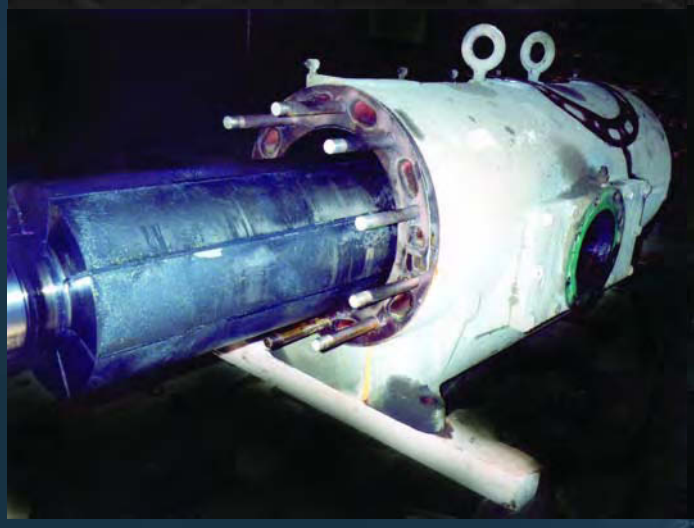
Compressor Exchange Program

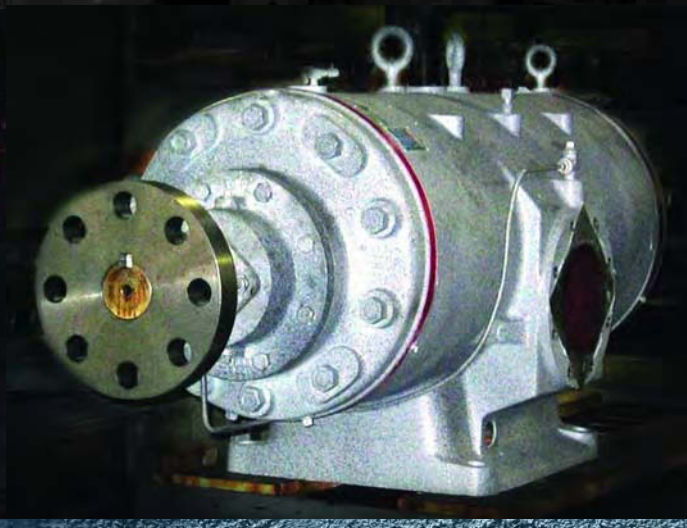


For applications requiring:

- **Reduced *downtime***
- **Increased *reliability***
- **Reduced maintenance *man-hours***

FLSmidth introduces the worry-free Compressor Exchange Program.





FLSmidth

How does it work?

FLSmidth's Compressor Exchange program exchanges worn compressors for OEM factory reconditioned and warranted replacements. Quick delivery can be made because large inventories of the popular compressors are maintained at FLSmidth's Manheim Plant and at Certified Service Centers located in Atlanta, Georgia; Tulsa, Oklahoma; Baton Rouge, Louisiana; and Los Angeles, California.

How does it work? Call a local authorized service center or FLSmidth Inc. and a customer service representative will confirm availability and the exchange compressor will be shipped to the customer. Then return the used compressor.

FLSmidth's Certified Service Center network is the only organization that can provide OEM certified exchanges with the same warranty as new. When it comes to Ful-Vane™ Compressors who would know better than the people who designed the original equipment?

Make your next emergency *HASSLE-FREE!*

The FLSmidth Compressor Exchange Program is designed to replace the cylinder assemblies on existing FLSmidth rotary compressors. The program minimizes downtime for replacement and is a highly economical method for restoring compressors to original performance standards.

Many of our customers are enjoying the capital cost savings feature of this unique program rather than investing in a completely new unit or assuming the risk of re-conditioning existing units by outside sources.

Each exchange compressor is a complete compressor less motor, coupling, piping, lubricator, base, regulator, intake filter and discharge non-return valve. These machines, less accessories, are called cylinder assemblies.

Each assembly is a completely restored unit which meets identical manufacturing standards as new units, and comes with the same 24-month manufacturers' warranty.

By returning your worn assembly, a replacement will be shipped as soon as possible from our exchange stock.

Upon receipt, compressor is disassembled and each component is thoroughly inspected.

Step-by-Step Ordering

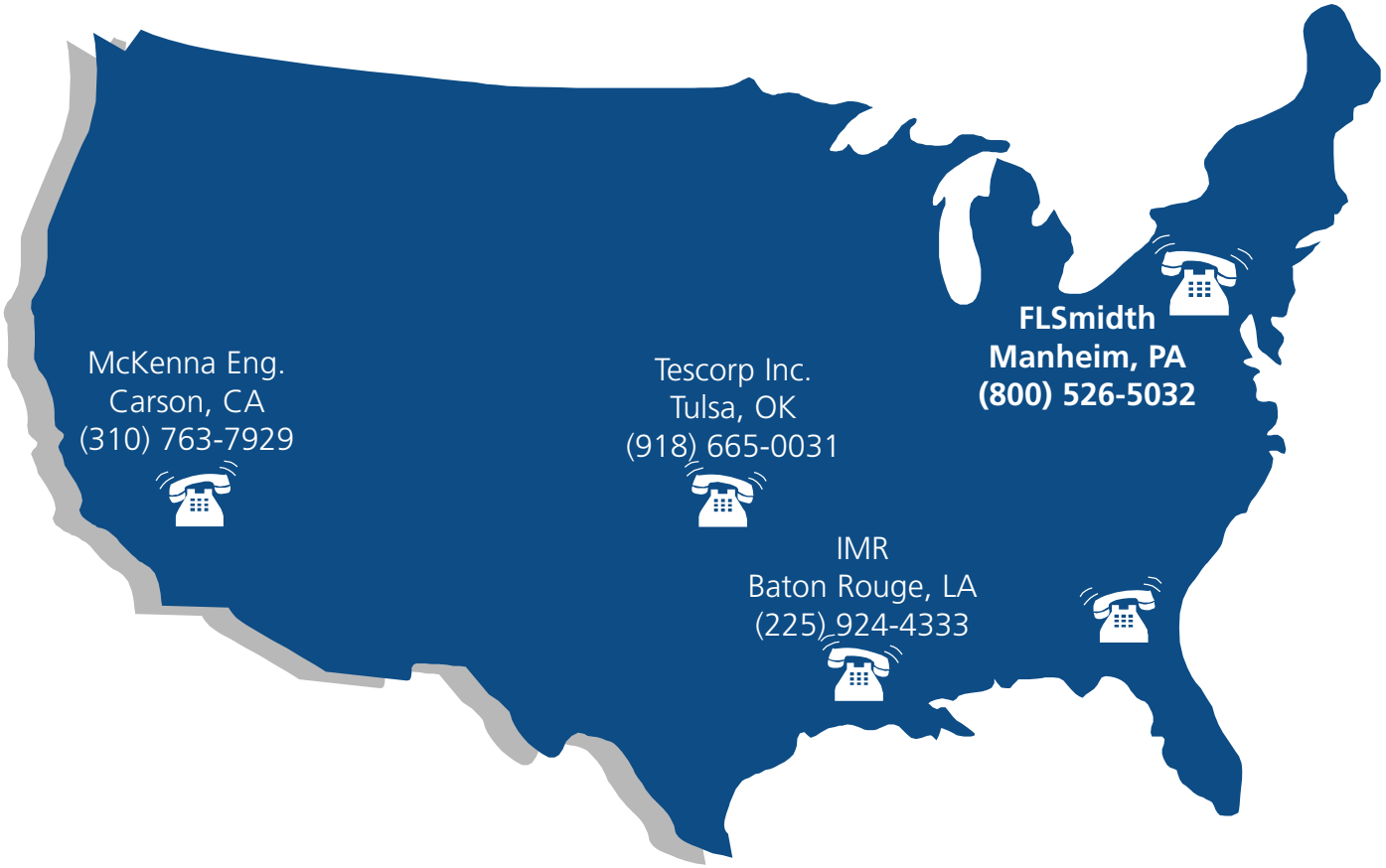
1. Contact the nearest Sales Representative or FLSmidth District Office or call FLSmidth Inc., located in Bethlehem, PA., at (610) 264-6415 or (610) 264-6994.
2. Advise your requirement with compressor serial number, size and rotation. The availability of an exchange cylinder assembly and shipping date will be provided. FLSmidth rotary compressor cylinder assemblies are stocked at five locations across the USA in every popular size. Availability is limited only by prior sale commitment.
3. The Compressor Exchange Cylinder Assembly will include:
   - ✓ New or reconditioned cylinder
   - ✓ New blades
   - ✓ New hub seal rings
   - ✓ New angle check valves
   - ✓ New bearing retainers, as required
   - ✓ New or reconditioned rotor
   - ✓ New bearings
   - ✓ New gaskets and shims
   - ✓ New or reconditioned heads
   - ✓ New mechanical seal parts or packing and gland, as required
   - ✓ All completely assembled to factory specifications
   - ✓ Factory inspected and tested, as required

   If inspection at our Manheim Plant determines the returned cylinder, rotor or heads to be scrap, a new one will be used and the appropriate cylinder rotor or head price will be added to the exchange price. If the cylinder, rotor and heads are scrap, the price of a new cylinder assembly will be applied, less 10% discount. Fifty percent of the cylinder assemblies sold through the exchange program are new.
4. As soon as an order is placed and an exchange cylinder assembly is shipped, the damaged cylinder assembly becomes the property of FLSmidth. It is imperative that the damaged cylinder be promptly returned to FLSmidth for rebuilding and to re-stock the program. Only return the items listed above when returning the damaged unit. DO NOT RETURN drive coupling, lubricator, non-return valve, regulator, intake filter, lubrication tubing or piping with the returned cylinder assembly.

   The damaged unit should be returned to the nearest service center as shown on the service center map (see page 4).

   MAKE CERTAIN THE UNIT RETURNED HAS THE IDENTICAL SERIAL NUMBER AS REPORTED WHEN ORDERING THE EXCHANGE UNIT.
5. The replacement cylinder assembly carries a 24-month from date of shipment factory warranty on material and workmanship. Warranty does not cover wear parts.

FLSmidth Service Center Locations



FLSmidth's Compressor Exchange Program is available for these popular sizes:

HP - High Pressure
LP/SS - Low Pressure / Single Stage

80 / 100 LP/SS
80 / 100 HP
110 / 120 LP/SS
110 / 120 HP
135 / 150 LP/SS
135 / 150 HP
175 / 200 LP/SS
175 / 200 HP
225 SS
250 / 300 LP/SS
300 HP
350 LP/SS
350 HP
508 SS / 608 SS

FLSmidth

www.fls-pt.com

Up-to-date addresses of worldwide subsidiaries and sales offices are available from our website

DENMARK

FLSmidth A/S
Vigerslev Allé 77
DK-2500 Valby
Copenhagen
Tel:+45 36 18 10 00
Fax:+45 36 30 18 20

USA

FLSmidth Inc.
2040 Avenue C
Bethlehem, PA 18017-2188
Tel:+1 610-264-6011
Tel:+1 800-523-9482
Fax:+1 610-264-6170
E-mail: info-us@flsmidth.com

INDIA

FLSmidth Ltd.
Capital Towers
180, Kodambakkam High Road
Nungambakkam
Chennai 600 034
Tel:+91 – 44-52 191234
Fax:+91 – 44-2827 9393
E-mail: indiainfo@flsmidth.com

06-2005-COMP EXCH

COMPRESSOR FILTERS: DEFEATING THE DAMAGE OF DUST

Troublesome dust. It is of genuine concern to all plant operators who maintain compressors. They know premature wear, decreasing efficiency and costly downtime are threatening to any equipment operation that is not well protected from dust.

That was the exact problem facing a large Southeastern cement plant. The situation in its mill room had reached a critical stage. Airborne dust was doing real damage.

Four (4) Rotary Compressors were furnishing air for pneumatic conveying systems that transport finished cement to storage silos from three (3) finish mills. To cope with the abrasive dusty environment, the plant was using impingement-type, oil bath filters to protect the compressors. Unfortunately, the compressors were not getting the protection required. Downtime reached an all-time high.

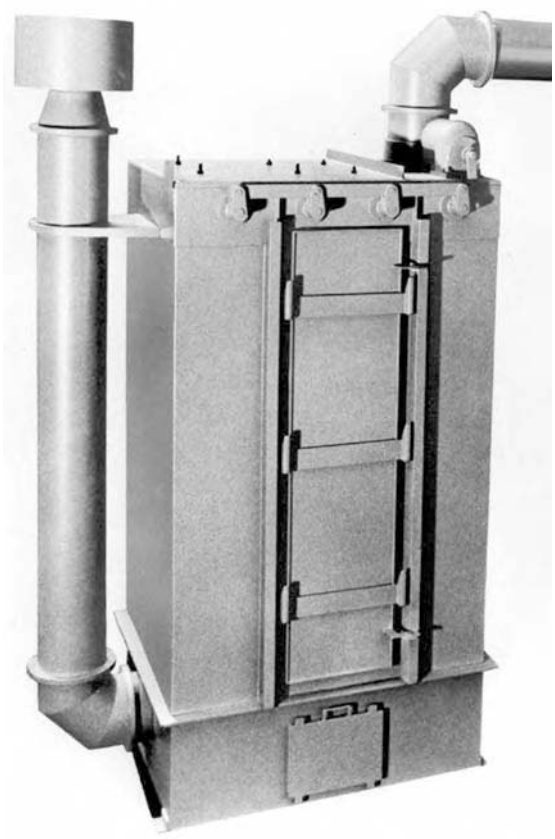
FLSmidth was approached to solve the problem. With its extensive experience in manufacturing both compressors and dust collectors, FLSmidth was able to develop and offer its new Compressor Intake Filter which delivers clean air to any type of compressor.

This new filter traps particles smaller than 1/4 micron. Heavy-duty bags of spun polyester are the filter element. Pre-coating may also be employed to raise filtration efficiency. Each bag has a five (5) inch (125 mm) diameter (48) to furnish a maximum air-to-cloth ratio of ten (10) to one (1), with capacities through 12,000 SCFM (340 cmm).

The four (4) compressor intake filter installed in the cement plant have sixteen (16) bags with 400 square feet (37m^2) of cloth area and can handle 4000 SCFM (113 cmm). Each filter serves a separate compressor, although the units can be manifolded for multiple compressor installation. Seven (7) months after the first filter installation, the compressor had never been off the line for repair.

Before your plant runs into real trouble, look into FLSmidth Compressor Intake Filters. They can safeguard your compressors against premature wear and low operating efficiency while eliminating downtime.

All units are pre-engineered and shipped fully assembled for easy customer installation. A descriptive bulletin with full specifications is available on request.

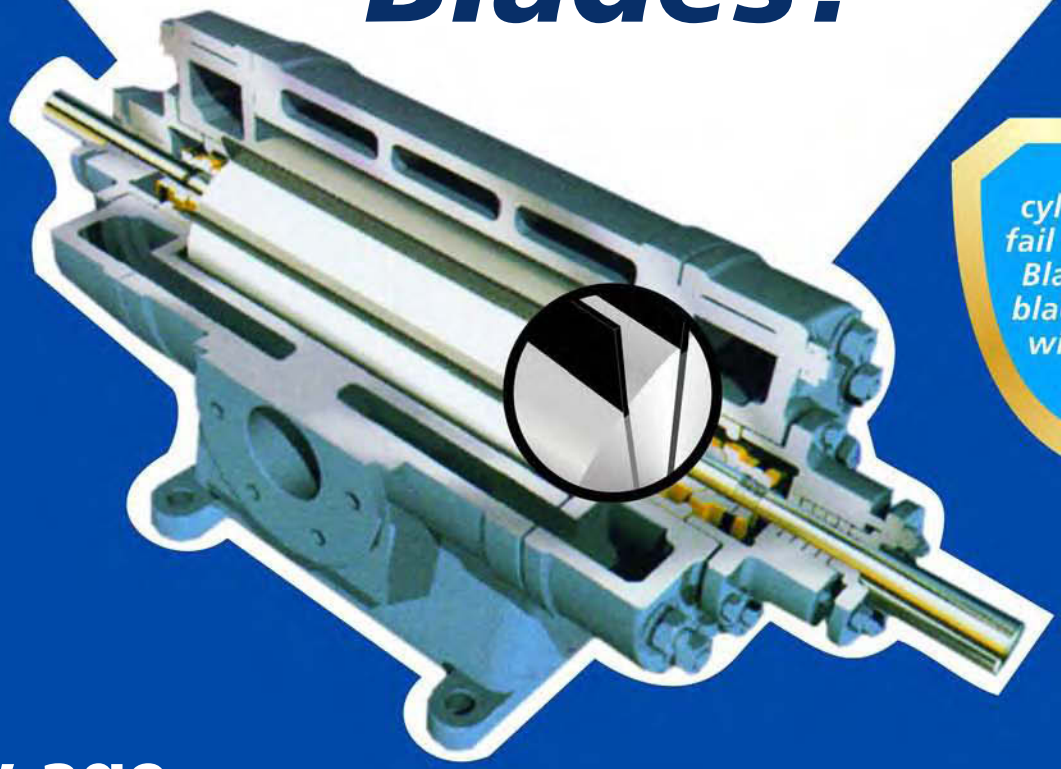


Sizes 0.25 through 4 are equipped with box-type dust chambers.

Sizes 5 through 7 are equipped with hopper bottom dust chambers.

Reduce your maintenance costs with FLSmidth!

Can your compressor *live without* our *Black Velvet™ Blades?*



No cylinder will fail due to our Black Velvet blades, or we will replace it free.

New age technology for conventional compressors

- *Lasts 4 to 5 times longer than phenolic or kevlar blades!*
- Reduces cylinder failure
- Less lubrication needed
- Extends the life of the compressor

Another innovative product from FLSmidth

800-795-6825

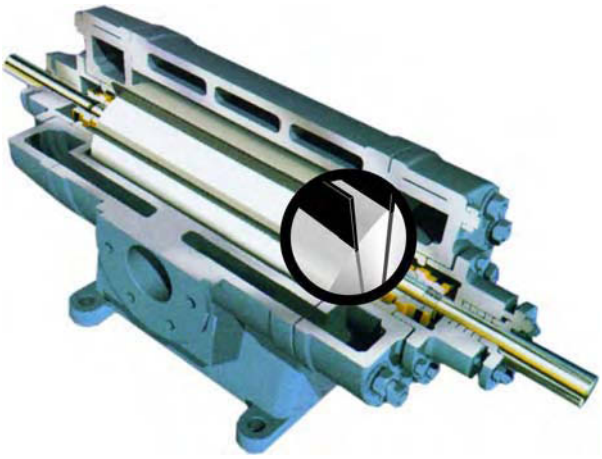
www.fls-pt.com

FLSmidth

SF-15

Carbon / Black Velvet Blades

Feature	Advantage	Benefit
Requires less lubrication in most instances	• Reduce oil lube by up to 50%	• Lowers oil and related maintenance cost. Reduces oil emissions in air stream
Blade strength	• Extended wear life	• 4x lifespan over other products
Blade composition (smooth & light)	• Limits bore corrugation by up to 50%	• Cut's cylinder re-boring frequency and/or replacement needs approximately in half
Non-moisture absorbing blade	• Blades won't swell	• Avoid delays caused by blade swelling Relaxed storage standards (No need to seal carton)
High temperature resistance	• Won't degrade at elevated temperatures	• Reduces replacement needs and related maintenance costs
Blade strength	• Avoids blade breakage	• Carbon blades will not cause catastrophic cylinder failure due to blade breakage

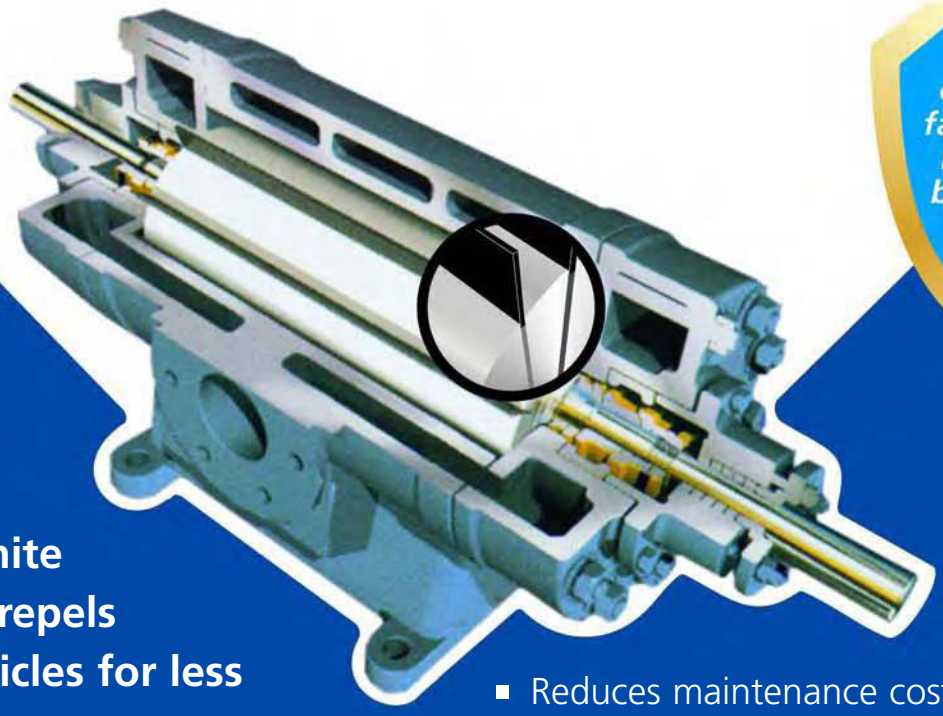


FLSmidth

1-800-795-6825
www.fls-pt.com

Reduce your maintenance costs with FLSmidth!

Black Velvet™ Blades last up to 4 times longer!



No cylinder will fail due to our Black Velvet blades, or we will replace it free.

Carbon graphite construction repels abrasive particles for less wear and tear.

- Reduces maintenance costs
- Smooth operation and durability
- Extends the life of the compressor

Actual Test Results:

Location	Compressor Size	System Pressure PSI	Blade Type	Std. Lube Rate DPM*	Lube Rate DPM	Length of Test	Total Blade Wear	Expected Blade Life Hours	Bore Condition** Test End	Total Hours of Operation†
1. Raw Mill 1	C300	15-20	Kevlar	49	49	15 months	1/8"	16,000	Slight Corrugation	4,000
1a. Raw Mill 1	C300	15-20	B3000	49	49	22 months	3/32"	60,000	No Corrugation	10,800
2. Raw Mill 2	CC300	20	B3000	49	24	13 months	1/32"	55,800	No Corrugation	3,488
3. Finish Mill 1	C300	30-35	B3000	49	24	9 months	3/32"	12,800	No Corrugation	2,400

*DPM Drops per minute lubrication rate

Notes:
1. All of the tested compressors were running at 590 RPM.
2. Maximum allowable blades wear is ½".

** Results based on no previous corrugation. Prior to installation cylinder must be checked for previous corrugation.

† Total Hours of Operation at the time measurements were taken

Actual results may vary and will depend on the level of existing corrugation. Have your cylinder bore checked today.

Another innovative product from FLSmidth

800-795-6825

www.fls-pt.com

FLSmidth

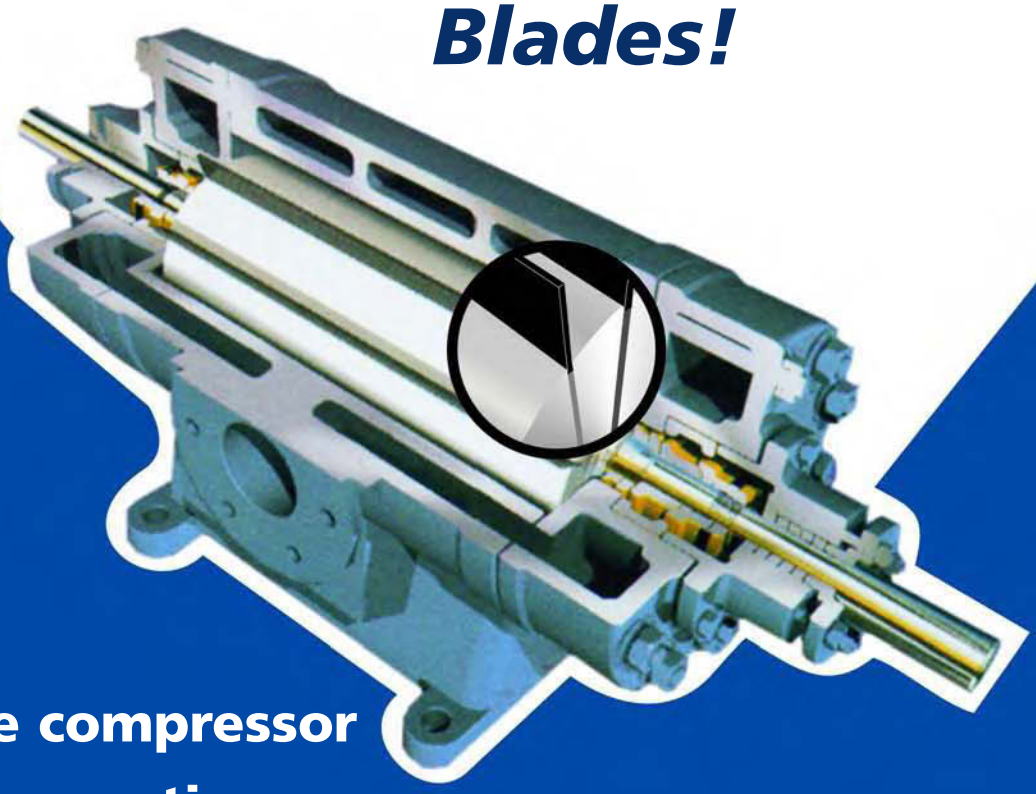
Delivering Dependability.

SF-55

Reduce your maintenance costs with FLSmidth!

Slash Oil Consumption with Black Velvet™ Blades!

No cylinder will fail due to our Black Velvet blades, or we will replace it free.



Reduce compressor oil consumption by up to 50%!

- Cleaner operation
- Reduced maintenance costs
- Long-lasting
- Extends the life of the compressor

Another innovative product from FLSmidth

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FLSmidth

Delivering Dependability.

SF-50

FLSmidth Announces Oil Rate Reduction

Oil lubrication is essential for successful operation of the Ful Vane™ compressor. The standard oil lubrication levels have not been altered for many years. However, FLSmidth has announced that reduced oil lubrication can be successfully applied. The criteria for the reduction in oil usages are outlined in the table below.

FLSmidth has also announced that the proven performance of the B3000 blade, exclusively supplied by FLSmidth for sliding vane compressors, has enabled us to reduce the oil lubrication rate.

The B3000 has also proven to be a longer lasting blade than blade types and the B3000 blade extends the life of the compressor cylinder.

FLS Oil Rate Reduction

FLSmidth ran tests on two C300's and one CC300 Ful Vane™ Compressors for over twelve months and monitored the operation for an additional year at a local cement production facility.

Based upon these production tests and on the results at another gypsum board production facility in the Chicago area, FLSmidth is now confident that we can make recommendations to our compressor users regarding a reduced rate of oil lubrication usage.

In all cases comparisons were made to the traditional standard levels of oil usage.

1. The undercut bore will tend to reduce blade life vs. the circular bore extending blade life.

2. Reduced lubrication rates will reduce HP and CFM by less than 1%.

3. Reduced lubrication rates will not be a detriment to blade life or bore wear in the Ful Vane™ compressor.

4. Our recommendation is that oil lubrication rate reduction to 50% of standard rates is acceptable on Ful-Vane™ compressors:

   a. Operating at standard speeds (RPM).

   b. Operated with recommended and maintained air intake filtration.

   c. Operated with recommended and maintained compressor cooling systems and temperatures.

Recommended Lubrication Rates

		DROPS PER MINUTE RATE OF FEED							@ 50% LUBRICATION RATES		
Compressor Size	(60 Hz) RPM	Each Head	Cyl. Int. Flange	Cyl. No. Feeds	Wall Drops Each	Total Drops	Total No. Feeds	Pints (Liters) Per Day	Total Drops	Pints (Liters) Per Day	PPM in Exhaust
15-16	1780	4	4	-	-	12	3	1.23 (.6)	6	.62 (.3)	74
30-40-50	1180	4	4	-	-	12	3	1.23 (.6)	6	.62 (.3)	30
60-70	880	4	4	-	-	12	3	1.23 (.6)	6	.62 (.3)	39
80-100	880	5	5	2	5	25	5	2.57 (1.22)	13	1.34 (.63)	28
110-120	705	5	5	2	5	25	5	2.57 (1.22)	13	1.34 (.63)	21
135-150	705	6	-	3	6	30	5	3.09 (1.5)	15	1.55 (.75)	20
175-200	590	7	-	3	7	35	5	3.60 (1.7)	18	1.85 (.88)	18
225	590	8	-	3	8	40	5	4.11 (1.95)	20	2.06 (.975)	16
250-300	590	7	-	5	7	49	7	5.04 (2.4)	25	2.57 (1.22)	16
350	590	9	-	5	9	63	7	6.48 (3.1)	32	3.29 (1.58)	16
375-400-450	500	11	-	5	11	77	7	7.92 (3.7)	39	4.01 (1.87)	17
508-608	500	11	-	7	11	99	9	10.18 (4.8)	50	5.14 (2.06)	17

Please note the rate reductions at 50% and the low PPM of oil in the exhaust gas of the compressor. The result of this lubrication rate reduction will be a cleaner operating compressor.

The important points to remember when reducing the lubrication rates to the Ful Vane is that the pressures do not exceed 30 psi, the compressor is operating at the standard RPM, the lubrication oil is #40 wt. and the cooling system is per FLSmidth's recommendation.

WARNING: Oil reduction must be done in steps of one-third, or 17% per step, up to a 50% reduction in oil. At each step of oil reduction the discharge temperature profile must be checked before continuing to the next step.

FLSmidth

Delivering Dependability.

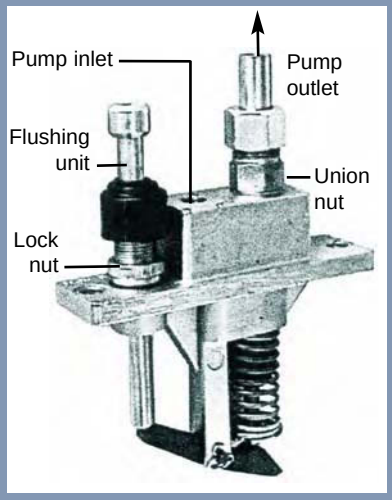
1-800-795-6825
www.fls-pt.com

SF-50

Now you can protect your compressors from burn-out or failure due to loss of lubrication.

15 or 30 Gallon Storage Tanks allow up to one month of continuous operation between refills...reducing man-hours and risk of water contamination.

Direct-Driven Pumping Unit with enclosed motor eliminates risk of system failure due to belt breakage.



MODEL P-55U PUMP - Patented one piece steel pump body with modular cylinder assembly represents the latest in pump design.

The 25-Micron Filter removes entrained impurities in the lubricant.

Digital No-Flow Timer (DNFT) monitors movement of divider piston for dependable “timed” shutdown protection. Not affected by temperature or oil viscosity. Requires no external power.

Liquid Crystal Display (DNFT) incorporates a liquid crystal display that accurately indicates lube-cycle time.

For additional details or pricing information contact your nearest Sales Representative or FLSmidth District Office, or call 1-800-523-9482.

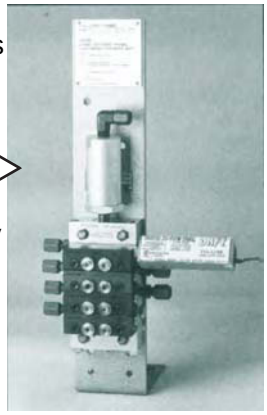
www.fls-pt.com

Ful-lube Lubrication System

Protect your valuable compressors against lube failure

- Safe and dependable compressor lubrication
- Helps protect compressors against lube failure
- Virtually eliminates a major cause of water contamination
- Reduces man-hours

FUL-LUBE system is designed to keep your workhorse machinery safely and precisely lubricated for as long as 30 days without refilling - cutting man-hours and virtually eliminating a major cause of water contamination.



FUL-LUBE’s new distribution block smoothly and continuously disburses lubricants to critical parts, safely powered by an enclosed, direct-drive pump.

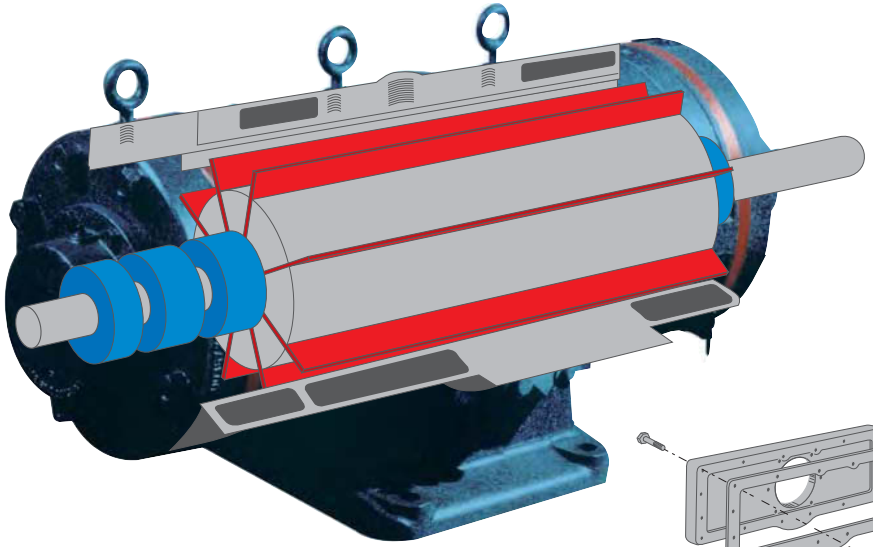
FUL-LUBE DUPLEX - One common storage tank serves two compressors. Lube flow can be isolated to each compressor.

LUBRICATOR DRIVE MOTOR - available for both single phase and three phase - 50 and 60 cycle service.

MANUAL PRIMING PUMP - Shipped with each Ful-Lube system, expedites priming of the lube system and purges lube system of air.

FLSmidth

SINGLE STAGE ROTARY COMPRESSOR/VACUUM PUMP PARTS IDENTIFICATION

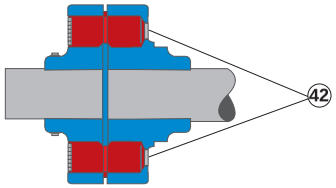


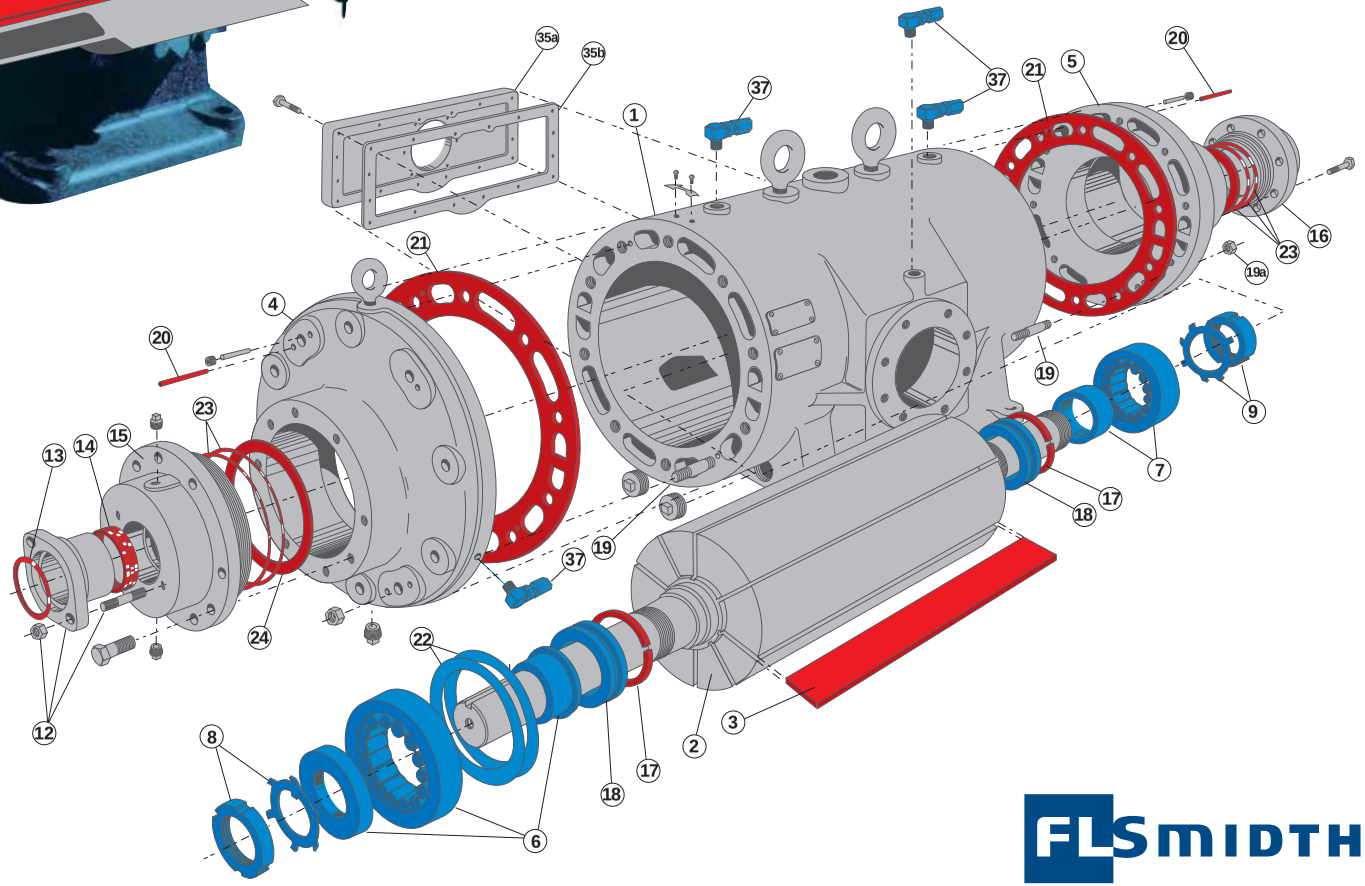
ITEM	NAME OF PART
1	CYLINDER
2	ROTOR
3	ROTOR BLADES (ORDER BY SETS)
4	CYLINDER HEAD (FRONT)
5	CYLINDER HEAD (REAR)
6	FRONT BEARING (FIXED)
7	REAR BEARING (EXPANSION)
8	BEARING LOCKNUT & WASHER (FRONT)
9	BEARING LOCKNUT & WASHER (REAR)
12	PACKING GLAND, STUDS & NUTS
13	OIL SEAL
14	PACKING (ORDER BY SETS)
15	BEARING RETAINER (FRONT)
16	BEARING RETAINER (REAR)
17	HUB SEAL RING
18	SEAL RING RETAINER

ITEM	NAME OF PART
19	CYLINDER HEAD STUDS
19a	CYLINDER HEAD STUD NUTS
20	DOWEL PINS (CYLINDER TO HEADS)
21	CYLINDER HEAD GASKETS
22	FRONT BEARING SHIMS
23	BEARING RETAINER ØO'RINGS
24	BEARING RETAINER GASKET
34	INLET FLANGE GASKET (NOT SHOWN)
34a	INLET COVER (NOT SHOWN)
34b	COVER GASKET (NOT SHOWN)
35	OUTLET FLANGE GASKET (NOT SHOWN)
◊35a	DISCHARGE COVER
◊35b	COVER GASKET
37	ANGLE CHECK VALVE WITH NUT & FERRULE
39	INTAKE OIL QUILL (NOT SHOWN)
42	COUPLING PINS

SIZES 350 THRU 608 ONLY ◊ SIZES 135 THRU 608 ONLY

* 2a ROTOR ASSEMBLY CONSISTS OF ITEMS 2, 6, 7, 8, 9, 17, & 18.





RED = BASIC KIT

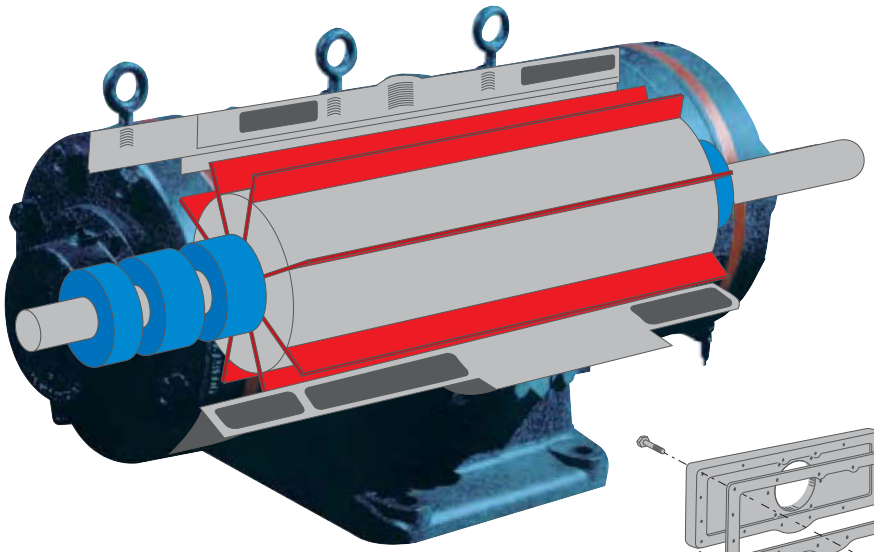
BLUE + RED = COMPLETE KIT

Pneumatic Transport
1-800-795-6825
Phone: 610-264-6055
Fax: 610-264-6735
www.fls-pt.com

FLSmidth

Drawings are also available at www.fls-pt.com in the **Contacts / Brochures** section.

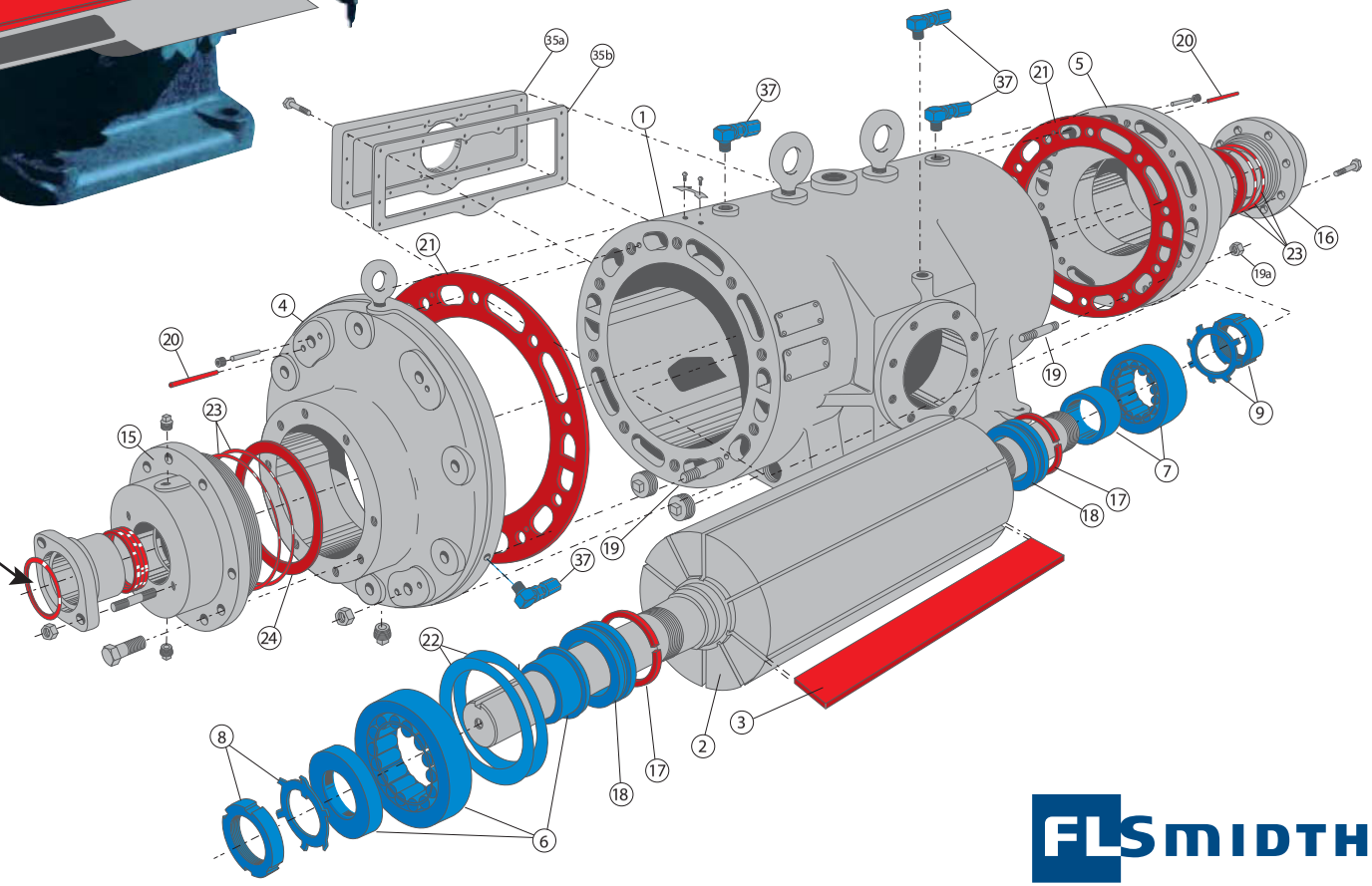
SINGLE STAGE ROTARY GAS COMPRESSOR PARTS IDENTIFICATION



ITEM	NAME OF PART
1	CYLINDER
2	ROTOR
3	ROTOR BLADES (ORDER BY SETS)
4	CYLINDER HEAD (FRONT)
5	CYLINDER HEAD (REAR)
6	FRONT BEARING (FIXED)
7	REAR BEARING (EXPANSION)
8	BEARING LOCKNUT & WASHER (FRONT)
9	BEARING LOCKNUT & WASHER (REAR)
16	BEARING RETAINER (REAR)
17	HUB SEAL RING
18	SEAL RING RETAINER

ITEM	NAME OF PART
19	CYLINDER HEAD STUDS
19a	CYLINDER HEAD STUD NUTS
20	DOWEL PINS (CYLINDER TO HEADS)
21	CYLINDER HEAD GASKETS
22	FRONT BEARING SHIMS
23	BEARING RETAINER "O" RINGS
24	BEARING RETAINER GASKET
34	INLET FLANGE GASKET (NOT SHOWN)
†34a	INLET COVER (NOT SHOWN)
†34b	COVER GASKET (NOT SHOWN)
35	OUTLET FLANGE GASKET (NOT SHOWN)
◊35a	DISCHARGE COVER
◊35b	COVER GASKET
37	ANGLE CHECK VALVE WITH NUT & FERRULE
39	INTAKE OIL QUILL (NOT SHOWN)

† SIZES 350 THRU 608 ONLY ◊ SIZES 135 THRU 608 ONLY



Note:
See mechanical seal cross section in IOM Manual

FLSmidth Inc.
Pneumatic Transport
1-800-795-6825
Phone: 610-264-6055
Fax: 610-264-6735
wwwfls-pt.com

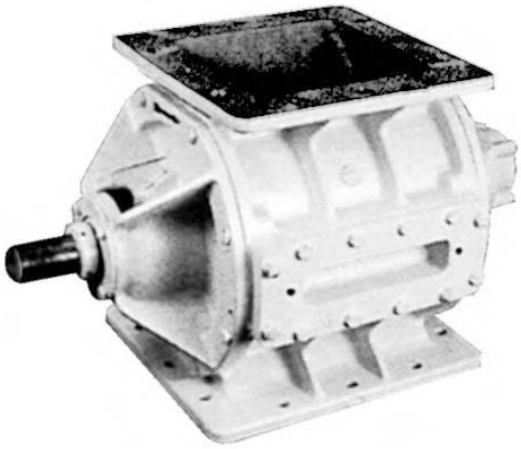
FLSmidth

Drawings are also available at www.fls-pt.com in the **Contacts / Brochures** section.

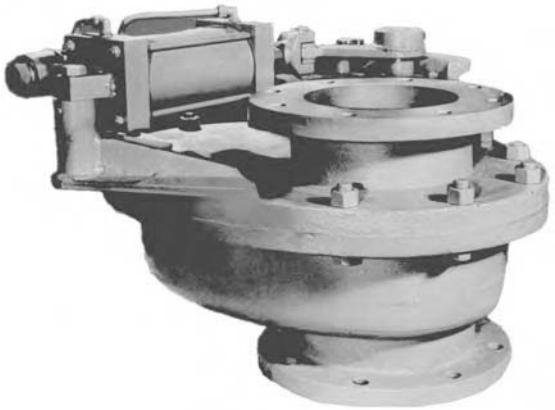
APPLICATION:

- Customer issues a Purchase Order for the current price for the inspection of the product.
- Customer returns the product to FLSmidth Manheim Plant, prepaid freight.
- FLSmidth personnel inspect product within 2 weeks and issue a report identifying critical parts and items required.
- FLSmidth issues a repair estimate and also provides a quote for a new product for comparison
- Customer decides: recondition product, purchase new or nothing.
- If customer orders either reconditioning or a new product, no charge for the inspection.
- If nothing is ordered, customer is invoiced for the inspection fee & must advise disposition of the old product.
- Reconditioned product warranty is identical to new product warranty - 12 months after shipment, materials & workmanship.
- Return freight is customer responsibility.

Two-way SK Valve w/ Replaceable Seat



Metric Feeder



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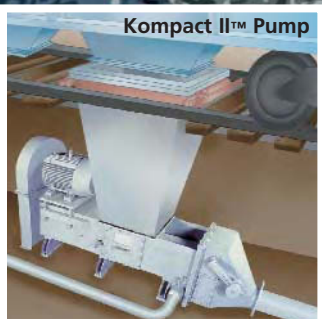

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DENMARK

FLSmidth A/S
Vigerslev Allé 77
DK-2500 Valby
Copenhagen
Tel:+45 36 18 10 00
Fax:+45 36 30 18 20
Email: info@flsmidth.com

USA

FLSmidth Inc.
2040 Avenue C
Bethlehem, PA 18017-2188
Tel:+1 610-264-6011
Tel:+1 800-523-9482
Fax:+1 610-264-6170
E-mail: info-us@flsmidth.com

INDIA

FLSmidth Ltd.
Capital Towers
180, Kodambakkam High Road
Nungambakkam
Chennai 600 034
Tel:+91 – 44-52 191234
Fax:+91 – 44-2827 9393
E-mail: indiainfo@flsmidth.com

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