



Products and solutions
for the alumina industry

tyco

Tyco understands your business

because your industry is our industry



Global sites bringing global solutions



English

Across the globe, alumina production relies on Tyco Flow Control's high quality valve and control solutions to meet their process requirements. From the bauxite stockpile to the finished casting, we have the complete product portfolio of manual and automated valve packages to meet your process needs.

Tyco Flow Control products consistently outperform all others. Our reliability and increased cycle life saves you time and money in the operation of your plant.

Use our selection matrix as a guide to help you chose the right valve arrangement for the various alumina process applications.

French

Partout dans le monde, la production d'alumine repose sur des solutions de robinetterie de haute qualité de Tyco Flow Control afin de répondre aux exigences du procédé. De la réserve de bauxite à la pièce finie, nous disposons d'une gamme complète de packages de vannes manuels et automatisés pour répondre à vos besoins en termes de procédé.

Les produits de Tyco Flow Control surpassent régulièrement tous les autres. Leur fiabilité et leur cycle de vie accru vous permettent d'économiser du temps et de l'argent dans l'exploitation de votre usine. Utilisez notre matrice de sélection comme guide pour vous aider à choisir la bonne configuration de vanne pour les différentes applications propres au procédé de production de l'alumine.

Greek

Εισαγωγικό κείμενο ενημερωτικού φυλλαδίου για την αλουμίνα Η παραγωγή αλουμίνας παγκοσμίως βασίζεται στις λύσεις βαλβίδων και ελέγχου υψηλής ποιότητας της Tyco Flow Control για την ικανοποίηση των απαιτήσεων επεξεργασίας της. Από τους σωρούς βωξίτη έως το τελικό χυτό υλικό, διαθέτουμε μια ολοκληρωμένη σειρά χειροκίνητων και αυτόματων συγκροτημάτων βαλβίδων που ανταποκρίνονται στις ανάγκες επεξεργασίας σας.

Τα προϊόντα της Tyco Flow Control έχουν διαρκώς ανώτερη απόδοση σε σύγκριση με όλα τα υπόλοιπα. Χάρη στην αξιοπιστία και στην αυξημένη διάρκεια του κύκλου ζωής των προϊόντων μας, εξοικονομείτε χρόνο και χρήμα στη λειτουργία της εγκατάστασής σας.

Χρησιμοποιήστε τον πίνακα επιλογής ως οδηγό για να επιλέξετε την κατάλληλη διαμόρφωση βαλβίδων για τις διάφορες εφαρμογές επεξεργασίας αλουμίνας.

Portugese

No mundo todo, a produção de alumínio conta com as válvulas e soluções de controle de alta qualidade da Tyco Flow Control para atender seus processos. Desde a bauxita aos moldes, temos uma gama completa de válvulas manuais e automáticas para atender as necessidades de produção.

Os produtos da Tyco Flow Control superam constantemente seus concorrentes. Nossa confiabilidade e maior ciclo de vida economizam tempo e dinheiro nas operações de suas plantas.

Utilize nossa matriz como um guia para ajudá-lo a escolher a válvula certa para as diversas aplicações de processo de alumínio.

Utilice nuestra matriz de selección como una guía para ayudarle a escoger el tipo de válvula correcta para las diversas aplicaciones del proceso de alumina.

Spanish

En todo el mundo, la producción de alumina confía en las válvulas y soluciones de control de alta calidad de Tyco Flow Control para satisfacer sus requerimientos de proceso. De las reservas de bauxita hasta el molde fundido, tenemos la gama de productos completa de válvulas manuales y automatizadas para satisfacer sus necesidades de proceso.

Los productos de Tyco Flow Control superan constantemente a todos los demás. Nuestra confiabilidad y mayor ciclo de vida de los productos le ahorra tiempo y dinero en la operación de su planta.

Utilice nuestra matriz de selección como una guía para ayudarle a escoger el tipo de válvula correcta para las diversas aplicaciones del proceso de alumina.

Italian

In tutto il mondo, la produzione di allumina si basa sull'alta qualità di valvole e sistemi di controllo Tyco Flow Contro per soddisfare gli specifici requisiti di processo di questo settore. Dalle riserve di bauxite alle fusioni finite, disponiamo del portafoglio prodotti completo di valvole manuali e automatizzate necessarie a soddisfare le esigenze di processo.

I prodotti Tyco Flow Control superano regolarmente in prestazioni quelli di tutti gli altri produttori. Straordinaria affidabilità e durata di vita prolungata garantiscono notevoli risparmi economici e di tempo, assicurando una maggiore produttività dell'impianto.

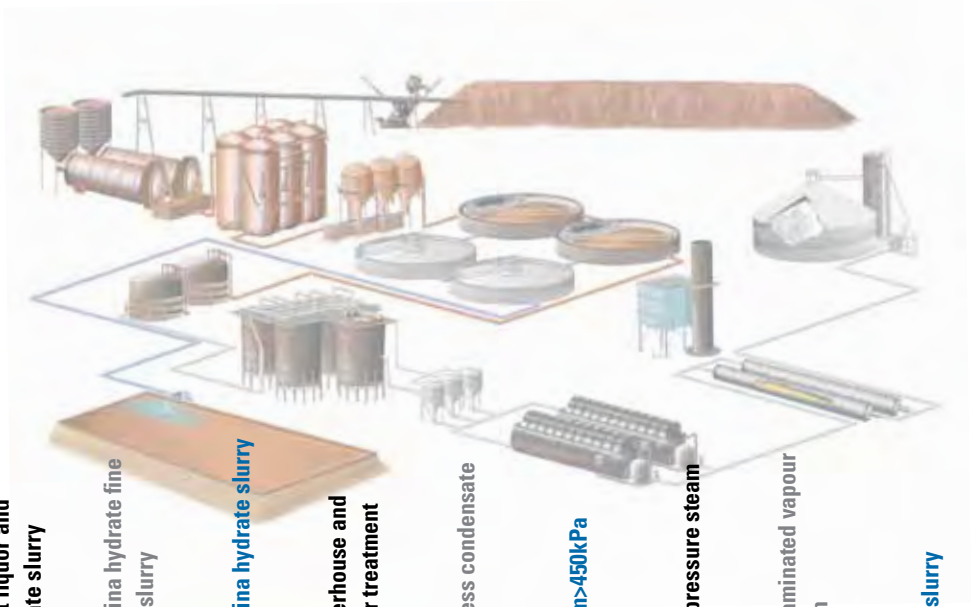
Servitevi della nostra tabella per scegliere la configurazione valvola/operatore più adatta alle varie applicazioni di processo dell'allumina.

Media product matrix

Our Media / Product matrix can show alternative valves for the same service. There is seldom a single solution, since pipe layout and space availability can affect the choice and the ever increasing use of automation across the whole size range demands different solutions.

The changing economics and safety within alumina refining is driving innovation and new thinking, Tyco Flow Control reflect this with our range of site tested and proven products and although your parameters may not be exactly those where we have installed product, we are always willing to work with you to obtain the solution.

Valve type	Mode	Spent liquor	Hot spent liquor	Green (pregnant) liquor	Liquor and cleaning liquor < (300g/l)	Digestion slurry	Mud slurry & sand slurry	Bauxite slurry	Washer overflow (20g/l)
Butterfly valves									
Keystone F990	On/Off/Control	●							
Keystone F2000	On/Off/Control						●		
Keystone K-Lok F360/370-158	On/Off/Control	●	●	●	●				
Keystone K-Lok U.H.M.W.P.E. Seat	On/Off								
Triple offset valves									
Vanessa 30,000	On/Off/Control								
Control valves									
Keystone F634 internallf coated	Control			●					
Keystone F637 short body	Control		●						●
Keystone F638 SE extended body	Control		●			●	●	●	
Keystone F638 S2 extended body	Control					●		●	
Clarkson C Valve	Control					●	●	●	
Knife gate valves									
Keystone F955 Ported	On/Off						●		
Clarkson KGA Slurry valve	On/Off			●			●	●	
Clarkson KGF High Pressure Slurry valve	On/Off						●	●	
Keystone F952 Slurry valve	On/Off								
Rovalve PCS17									
Rovalve S20									
L&M M145/M345							●		
Angle isolation valves									
Lunkenheimer F603 angle	On/Off	●	●	●	●	●	●	●	●
Keystone F624 angle autogrind	On/Off			●					
Klein K4050 'inline' valve	On/Off	●	●	●	●	●	●	●	●
Bayonet valves									
Lunkenheimer F604	On/Off	●	●	●	●		●	●	●
Combination valves									
Lunkenheimer F605	On/Off					●			
Drain valves									
Lunkenheimer F606	On/Off	●	●	●	●	●	●	●	
Check valves									
Lunkenheimer F607	On/Off	●	●	●	●	●	●	●	
Tank valves									
Keystone F628 tank autogrind	On/Off			●					
Klein tankbottom	On/Off	●	●	●	●		●	●	



Settler overflow
(200g/l)

Underflow

Floculant

Leach mix (Sodium
Aluminate@3500C)

Spent liquor and
oxalate slurry

Alumina hydrate fine
seed slurry

Alumina hydrate slurry

Powerhouse and
water treatment

Process condensate

Steam>450kPa

Low pressure steam

Contaminated vapour
return

Lime slurry

	•																						

Butterfly valves

Valves for the control and isolation of liquors, light and heavy, throughout the Bayer process. Our installed base and experience over many years of operation and improvement ensures the right valve for every application.



F990 CEE2/CEE4

Brand:

Keystone

Size: DN (inches)

25 - 500 (1 - 20)

Pressure: kPa (psi)

1000 (150)

Temperature: °C (°F)

120 (250)

Flanges:

ASME 150 & AS 2129

Features:

- One piece thin stainless steel disc.
- Compact, light weight wafer style body.
- Bi-directional bubble tight shut-off.

F2000/F618

Brand:

Keystone

Size: DN (inches)

50 - 500 (2 - 20)

Pressure: kPa (psi)

1400kPa/1800kPa

Temperature: °C (°F)

120 (250)

Flanges:

ASME 150 & AS 2129

Features: F2000

- Wafer style body.
- Bi-directional, bubble tight resilient seated valve.
- Steel reinforced SBR seat.
- High strength thru-shaft.
- Air quenched hardened ductile disc.
- Features: F618
- Bi-directional, bubble tight resilient seated valve.
- Steel wafer body.
- Higher pressures.
- Higher temperatures.
- Hardened steel disc.
- Duplex stainless shaft.

PTFE Lined

Brand:

Neotecha

Size: DN (inches)

40 - 900 (1½ - 36)

Pressure: kPa (psi)

1000 (150)

Temperature: °C (°F)

200 (390)

Flanges:

ASME, AS 2129

Features:

- PTFE lined internals.
- Utilises mechanical stem seal.
- Wide PTFE sealing face.
- Suitable for shut-off or control of highly corrosive media.

K-LOK F360/370-158

Brand:

Keystone

Size: DN (inches)

50 - 900 (2 - 36)

Pressure:

ASME 150, 300

Temperature: °C (°F)

535 (995)

Flanges:

ASME, AS 2129

Features:

- Double offset
- disc-stem for reduced opening /closing torque.
- Range of interchangeable seat options.
- Cast steel body.
- Nickel edge disc.
- R.T.F.E. seats.
- U.H.M.W.P.E. seats.
- Encapsulated seat design.

Triple offset valve

Brand:

Vanessa

Size: DN (inches)

80 - 3600 (3 - 140)

Pressure:

ASME 900

Temperature: °C (°F)

815 (1500)

Flanges:

ASME150, 300, 600 & 900

Features:

- Unique triple offset metal seated valve.
- Zero leakage.
- One piece cast body.
- Stellite seat
- standard.
- Full range of actuators available.



F637-032
Hi-Chrome internals
short body

Brand:

Keystone

Size: DN (inches)

50 - 600 (2 - 24)

Trim:

28% Chrome Iron

Pressure: kPa (psi)

1400 (200)

Temperature: °C (°F)

230 (445)

Flanges:

ASME 150 FF

Features:

- Wafer style body.
- Short body.
- Bi-directional control valve.
- Swing through disc with minimum leakage.
- Multiple Elastomer stem seals.
- Hard wearing 28% chrome iron (650 Brindell hardness) liner and disc.
- F634-038 all Teflon coated internals.



F638 SE
Heavy duty
extended body

Brand:

Keystone

Size: DN (inches)

80 - 600 (3 - 24)

Trim:

Heavy Duty

Pressure:

ASME 150, 300

Temperature: °C (°F)

230 (445)

Flanges:

ASME FF

Features:

- Unique extended body design to ensure that the medium impinges within the valve body not the pipeline.
- Multiple Viton stem seals.
- Hard wearing 28% chrome Iron (650 Brinell hardness) liner and disc.
- Ceramic trim 026 available.



F638 S2
Arduous series
extended body

Brand:

Keystone

Size: DN (inches)

80 - 600 (3 - 24)

Trim:

Arduous Duty

Pressure:

ASME 150, 300

Temperature: °C (°F)

230 (445)

Flanges:

ASME FF

Features:

- Unique extended body design to ensure that the medium impinges within the valve body.
- High chrome & tungsten carbide internals.
- KTFE stem seals for acid & caustic resistance.
- Wing disc for erosion reduction.
- High CV.
- High rangeability.

Knife gate valves



Heavy duty slurry isolation

Brand/model:

Clarkson KGA

Size: DN (inches)

80 to 1500 (3 to 60)

Pressure: kPa (psi)

690 (100)

Temperature: °C (°F)

150 (300)

Flanges:

ASME, AS 2129

Features:

- Bi-directional shut-off.
- Heavy duty slurry valve.
- Replaceable full port elastomer sleeves.
- No metal parts in the flow path (open position).



High pressure slurry isolation

Brand/model:

Clarkson KGF, KGF (HP)

Size: DN (inches)

80 to 900 (3 to 36)

Pressure: kPa (psi)

5110 (740)

Temperature: °C (°F)

150 (300)

Flanges:

ASME, AS 2129

Features:

- Bi-directional shut-off.
- Heavy duty slurry valve.
- Replaceable full port elastomer sleeves.
- No metal parts in the flow path (open position).



Uni-directional

Brand/model:

Keystone F951, F952

Size: DN (inches)

50 to 600 (2 to 24)

Pressure: kPa (psi)

1000 (150)

Temperature: °C (°F)

230 (446)

Flanges:

ASME, AS 2129

Features:

- Wafer and lugged body.
- Self aligning gland box.
- One piece cast body and chest.
- Stainless steel valve body and trim.



Polymer lined

Brand/model:

L&M Valve M345, M345 (HP)

Size: DN (inches)

50 to 1500 (2 to 60)

Pressure: kPa (psi)

5110 (740)

Temperature: °C (°F)

-29 to 180 (-20 to 350)

Flanges:

ASME, AS2129

Features:

- Three piece replaceable polymer liner.
- Bi-directional flow.
- Full port design.



F955 Through conduit

Brand:

Keystone

Size: DN (inches)

50 - 750 (2 - 30)

Pressure: kPa (psi)

1600 (235)

Temperature: °C (°F)

120 (250)

Flanges:

ASME, AS 2129

Features:

- Rugged thru port design.
- Bi-directional sealing.
- Dual hardness reinforced elastomer seats.
- Flushing ports.



Bi-directional perimeter seal

Brand/model:

Rovalve PCS17*

Size: DN (inches)

50 to 900 (2 to 36)

Pressure: kPa (psi)

1000 (150)

Temperature: °C (°F)

-29 to 205 (-20 to 400)

Flanges:

ASME, DIN, PN

Features:

- Field replaceable one piece cartridge seat.
- Four post yoke.
- Bi-directional shut-off.
- Integral packing support bar with metal substrate.

* ("P" in PCS stands for perimeter).



Uni-directional metal seat

Brand/model:

Rovalve S20

Size: DN (inches)

50 - 900 (2 - 36)

Pressure: kPa (psi)

1000 (150)

Temperature: °C (°F)

472 (883)

Flanges:

ASME & AS 2129

Features:

- Cast stainless steel body.
- Shut-off to MSS SP-81.

Globe angle & in-line valves

Heavy duty globe, angle and in-line style isolation valves for the heaviest bauxite and hydrate slurries. Actuated solutions for all plant conditions make us your first choice.



K4050 Inline 'Y' type

Brand:
Klein

Size: DN (inches)
50 - 500 (2 - 20)

Pressure:
Only available in Class 150

Temperature: °C (°F)
455 (850)

Flanges:
ASME 150, PN10

Features:

- Split body.
- Venturi design on inlet helps prevent scale formation.
- Over spec wall thickness.
- Proven design.
- PED approved.

K4100 - K4250 Tank bottom

Brand:
Klein

Size: DN (inches)
50 - 500 (2 - 20)

Pressure:
Only available in Class 150

Temperature: °C (°F)
455 (850)

Flanges:
ASME 150, PN10

Features:

- Installation on pipe or on tank.
- Over spec wall thickness.
- Proven design.
- PED approved.

F603 Slurry angle

Brand:
Lunkenheimer

Size: DN (inches)
50 - 900 (2 - 36)

Pressure:
ASME 150, 300, 600

Temperature: °C (°F)
455 (850)

Flanges:
ASME150, 300, 600

Features:

- Regrindable seat.
- Over spec wall thickness.
- Large range of actuators.
- Proven design.
- PED approved.

F604 Bayonet

Brand:
Lunkenheimer

Size: DN (inches)
50 - 900 (2 - 36)

Pressure:
ASME 150, 300, 600

Temperature: °C (°F)
455 (850)

Flanges:
ASME150, 300, 600

Features:

- Regrindable seat.
- Over spec wall thickness.
- Large range of actuators.
- Proven design.
- PED approved.

F605 Combination

Brand:
Lunkenheimer

Size: DN (inches)
80 - 600 (3 - 24)

Pressure:
ASME 150, 300, 600

Temperature: °C (°F)
455 (850)

Flanges:
ASME 150, 300, 600

Features:

- Regrindable seat.
- Over spec wall thickness.
- Large range of actuators.
- Proven design.
- PED approved.



F606 Drain

Brand:

Lunkenheimer

Size: DN (inches)

50 - 150 (2 - 6)

Pressure:

ASME 150, 300, 600

Temperature: °C (°F)

455 (850)

Flanges:

ASME 150, 300, 600

Features:

- Compact one piece design.
- Regrindable seat.
- Proven design.
- PED approved.



**F607
Slurry check**

Brand:

Lunkenheimer

Size: DN (inches)

80 - 600 (3 - 24)

Pressure:

ASME 150, 300, 600

Temperature: °C (°F)

455 (850)

Flanges:

ASME 150, 300, 600

Features:

- Bottled cap angle piston type.
- Over spec wall thickness.
- PED approved.



**F624
Hydraulic angle**

Brand:

Keystone

Size: DN (inches)

200 - 600 (8 - 24)

Pressure:

ASME 150

Temperature: °C (°F)

230 (445)

Flanges:

ASME 150

Features:

- Hydraulically operated.
- Offers opening, closing and seal grinding in a single operation.
- Dual plug cutting action.
- Fully retractable cutter.
- Remote and automatic control available.



**F628
Hydraulic tank**

Brand:

Keystone

Size: DN (inches)

200 - 500 (8 - 20)

Pressure: kPa (psi)

1200 (175)

Temperature: °C (°F)

230 (445)

Flanges:

ASME 150

Features:

- Hydraulic powered self grinding valve.
- Automatic scale removal on opening and closing.
- Cuts and grinds on seating.

Pressure relief & boiler control valves

Solutions for steam, condensate and process safety with products from Anderson Greenwood and Crosby, Sempell, Dewrance, Hancock and Raimondi - all specialists in their field. Tyco Alumina offers real solutions from a single source.



Boiler safety

Brand:
Anderson Greenwood,
Crosby, Sapag.
Size: DN (inches)
12 to 750 (½ - 30)
Pressure:
ASME 150 to 4500
Types:
Spring, Pilot and Power
Operated

Steam isolation

Brand:
Dewrance, Fasani,
Raimondi, Sempell,
Vanessa.
Size: DN (inches)
10 to 3600 (¾ - 140)
Pressure:
ASME 150 to 4500
Types:
Wedge Gate, Parallel
Slide, Globe, ¼ turn

Pilot operated relief

Brand:
Anderson Greenwood,
Crosby.
Size: DN (inches)
12 to 500 (½ - 20)
Pressure:
ASME 150 to 2500
Types:
Pilot Operated

Pressure relief

Brand:
Anderson Greenwood,
Crosby, Kunkle, Sapag.
Size: DN (inches)
12 to 500 (1½ - 20)
Pressure:
ASME 150 to 2500
Types:
Spring, Weight and Power
Operated

Desuperheaters

Brand:
Yarway, Narvik.
Size: DN (inches)
40 to 100 (1½ - 4)
Pressure:
ASME 150 to 4500
Types:
Multiple Nozzle Control



Boiler level indicators

Brand:

Yarway, Penberthy.

Pressure: kPa (psi)

20 - 68 (3000)

Types:

Mechanical, Magnetic, Ultrasound, Electric



Pump protection

Brand:

Yarway.

Size: DN (inches)

12 to 300 (½ - 12)

Pressure:

ASME 300 to 4500

Types:

Automatic recirculation valve with check by-pass



Gate, globe & check

Brand:

Hancock.

Size: DN (inches)

6 to 150 (¼ - 6)

Pressure:

ASME 150 to 600

Types:

Cast & Forged Gate, Globe & Check valves

Service solutions



Valve and actuator repairs

- Remove, overhaul, install and re-commission.
- Documentation – the entire repair process of each valve is documented and dispatched with a detailed report.



Control valves

- Support of all common interfaces (PROFIBUS, DeviceNet™ and AS-i®).
- Loop check.
- Calibration, reconditioning and testing.
- Trouble shooting.



Instrumentation

- Servicing and calibration devices such as pH, temperature, flow, conductivity, and pressure
- Most voltages/pressures
- Trouble shooting.



Safety relief valves

- Repair and service all manufacturers' safety relief valves from steam, gas, air and liquid service.
- Accredited testing facility.
- Pilot operated – both soft seat and hard seat.
- Direct spring – conventional or balanced.
- Tank vacuum/pressure relief.
- Safety selector valves.
- Anderson Greenwood and Crosby repair and testing center.
- Workshop or on-site testing, repairs and calibration.



ISO and NATA pressure

- Pressure test to most international API and ASME standards.



Pump equipment

- This includes the supply and retro-fit of high efficiency impellers, upgrading of wet end materials.
- Components and sealing devices.
- Additional services include hard facing and metal spraying to increase resistance to erosion and corrosion.



Pneumatic / hydraulic equipment

- The complete refurbishment and servicing of hydraulic pumps, motors and power packs, along with linear actuators including seals, piston rods and re-chroming.



Field services

- Installation, commissioning, service, repair and ongoing maintenance.
- Repacking.
- Calibration.
- In-situ safety relief valve.
- Testing ASME I.
- In-situ valve lapping.
- Emissions monitoring.

Tyco Flow Control

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