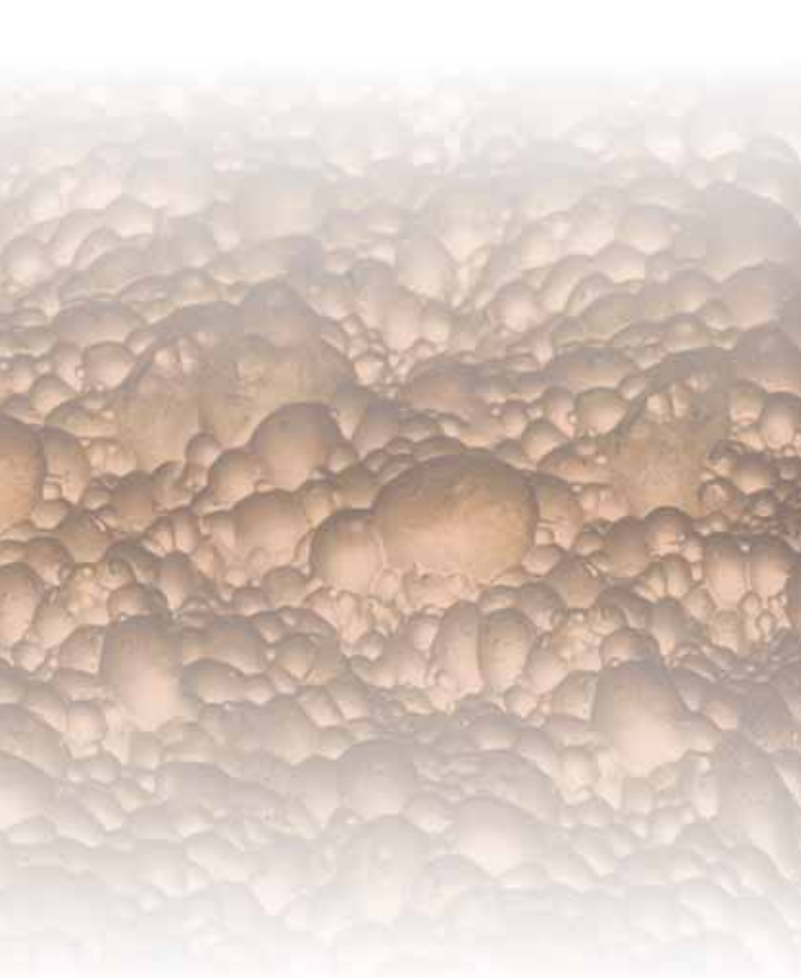




Your Partner in Copper Production

tyco / Flow
Control

TYCO COPPER GROUP

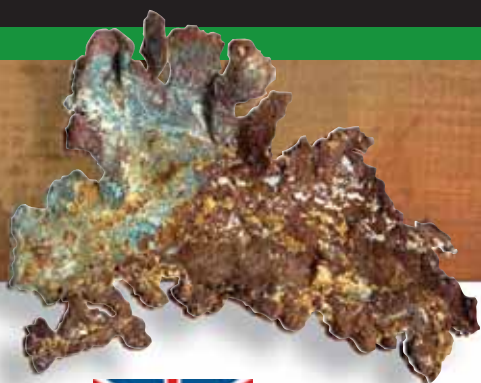
a vital part of your process

A worldwide network of solution providers brings you a wealth of experience, research, design, service, development and manufacturing.

Work with site teams and engineers, consultants and contractors to bring solutions to your process challenges.

By understanding what you want to achieve and what your expectations are, we can provide you with the best possible solutions that fit your business.

Put us to the test and discover our commitment to add "real" value to your process.



KEYSTONE

CLARKSON

SA



Tyco Flow Control has a package of proven product solutions for the production of copper from concentrators to smelters, electrolytic refineries and SX-EW plants. We bring you the respected names of Keystone, Clarkson, L&M, Rovalve, Sapag, Anderson Greenwood Crosby, Neotecha, KTM, Vanessa and Morin, with their large installed base to provide a solution for every application. Our suitability matrix shows the valves that can be used on a variety of media and are installed in the world's largest facilities in South America through North America, Europe, Africa and Asia. 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. Tyco manufactures a complete range of manual, electric, pneumatic and hydraulic actuator packages for our range of valves, which we continue to develop to reflect the changing requirements of health and safety; if there is an application you can rely on us to have the solution.



Tyco Flow Control ofrece un paquete de soluciones de productos aprobados en la producción de cobre desde concentradores a fundidores, refinerías electrolíticas y plantas SX-EW. Le ofrecemos a usted nombres reconocidos como Keystone, Clarkson, L&M, Rovalve, Sapag, Anderson Greenwood, Crosby, Neotecha, KTM, Vanessa y Morin, con su extensa base instalada para proporcionar una solución a cada aplicación. La idoneidad de la matriz muestra las válvulas que pueden ser usadas en varias aplicaciones y están ubicadas en grandes instalaciones alrededor del mundo desde América del Sur a Norte América, Europa, África y Asia. Raramente existe una solución simple para una aplicación dada, debido al diseño de tubería y disponibilidad de espacio físico que pueden afectar la elección del equipo y además, el uso siempre creciente de automatización a en todos los tamaños de válvulas. Tyco elabora una paquetes completo de actuadores manuales eléctricos, neumáticos y/e hidráulicos para nuestra gran variedad de válvulas, las cuales siempre estamos innovando para reflejar las necesidades de cambio tanto en salud como en seguridad; si existe una aplicación, usted puede confiar en nosotros para obtener la debida solución.



Tyco Flow Control memiliki berbagai paket solusi produk yang terjamin seperti untuk proses produksi tembaga mulai dari bentuk konsentrat sampai ke peleburan, elektrolisis refineries, dan pabrik-pabrik SX-EW. Sebut saja beberapa nama terkenal seperti Keystone, Clarkson, L&M, Rovalve, Sapag, Anderson Greenwood Crosby, Neotecha, KTM, Vanessa dan Morin, dengan instalasi-instalasinya yang telah terpasang di berbagai pabrik besar, telah memberikan solusi bagi setiap aplikasinya. Matriks kami telah menunjukkan bahwa Tyco valves dapat digunakan pada berbagai media dan telah terpasang di fasilitas-fasilitas terbesar dunia di Amerika Selatan sampai ke Amerika Utara, Eropa, Asia dan Cina. Terdapat banyak solusi atas aplikasi yang diterapkan, baik dalam hal variasi tata letak pipa, keterbatasan ruang dan konsentrasi media yang melaluinya. Dimana faktor-faktor ini dapat mempengaruhi kriteria pemilihan dan juga adanya peningkatan permintaan aplikasi otomatisasi dan berbagai permintaan lain yang membutuhkan solusi yang berbeda. Tyco juga memproduksi bermacam-macam paket aktuator baik hidrolik, pneumatik, elektrik maupun manual untuk dapat digunakan pada berbagai macam produk valves kami, yang mana terus kami kembangkan sesuai dengan tuntutan dan kebutuhan akan kesehatan dan keselamatan kerja, apapun aplikasinya, Anda dapat mengandalkan kami untuk memecahkannya.

Global sites bringing Global services



Ham, France
Sapag Products



Reno, Nevada, USA
Clarkson Products



Stafford, Texas USA
Anderson Greenwood
Safety Relief Valves



Brazil
Sorocaba



Japan
KTM Products



Nowra NSW Australia
Keystone Valves

PAG

RICHARDS



Neotech

KTM



泰科铜业拥有一整套成熟的用于选矿厂、冶炼厂、电解熔炼厂和浸出取—电解铝厂的产品解决方案。我们带给您众多拥有大量成功业绩的知名品牌，包括 Keystone, Clarkson, L&M, Rovalve, Sapag, Anderson Greenwood Crosby, Neotech, KTM, Vanessa 和 Morin 等，这些品牌已在多种工况下在世界各地拥有大量的应用实例，从我们的产品应用表中可以看出其应用范围相当广泛，并且适用于各种介质。因为管道的规格、可用空间、自动控制系统的需要日益增多，很难用一种解决方案满足所有需求，都需要我们用不同的解决方案去完成。泰科为所有类型的阀门生产配套的手动、电动、气动和液动执行机构，我们仍继续研发那些可以满足人们健康及安全需要的产品。泰科将为您提供适合于任何一种工况的解决方案。

Tyco Flow Control, kanıtlanmış çözümleri ile konsantrasyon tesislerinden eritme tesislerine, elektrolitik rafinerilerden SX-EW tesislerine kadar bir çok bakır üretim tesisleri için kapsamlı bir ürün yelpazesine sahiptir. Yaygın referansları ile neredeyse tüm uygulamaları için çözüm üretmektedir. Keystone, Clarkson, L&M, Rovalve, Sapag, Anderson Greenwood Crosby, Neotech, KTM, Vanessa ve Morin gibi saygın markaları ayağınıza getirmektedir. Çeşitli akışkanlar için uygunluğu ile Tyco vanaları Güney Amerika'dan Kuzey Amerika'ya, Avrupa, Asya ve Çin'deki dünyanın en büyük tesislerinde bir çok uygulama için halen başan ile kullanılmaktadır. Borulama - montaj kısıtları ve akışkan konsantrasyonları gibi farklı değişkenlerin mevcut olduğu özel uygulamalarınız için çeşitli seçenekleri arasında sadece tek bir çözüm sunduğu nadir görülür. Bu gibi, seçimlerinizi etkileyebilecek her hangi bir parametre ve neredeyse tüm boyutlar için sürekli artan otomasyon ihtiyaçları, özelleşmiş çözümleri mecbur kılmaktadır. Tyco ise vana ürün yelpazesi için el kumandalı, elektrik, pnömatik ve hidrolik gibi tüm aktüatör alternatiflerini kullanımınıza sunmaktadır. Güvenlik ve sağlık şartlarındaki değişen ihtiyaçları karşılayabilmek için sürekli gelişim halinde olan Tyco güvenilir çözüm ortağınızdır.

Tyco Flow Control has a package of proven product solutions for the production of copper from concentrators to smelters, electrolytic refineries and SX-EW plants. We bring you the respected names of Keystone, Clarkson, L&M, Rovalve, Sapag, Anderson Greenwood Crosby, Neotech, KTM, Vanessa and Morin, with their large installed base to provide a solution for every application. Our suitability matrix shows the valves that can be used on a variety of media and are installed in the world's largest facilities in South America through North America, Europe, Africa and Asia. 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. Tyco manufactures a complete range of manual, electric, pneumatic and hydraulic actuator packages for our range of valves, which we continue to develop to reflect the changing requirements of health and safety; if there is an application you can rely on us to have the solution.

Media Product Matrix

A v i t a l p a

Conventional Refining Methods

Our media / product matrix allows users to identify specific applications for conventional mining and refining process in the copper industry.

There is seldom a single solution for a given application, due to pipe layout, available space and the ever increasing use of automation on-site. Technology, economies and safety within copper production drive innovation and improved outcomes.

Tyco's global copper product portfolio reflects this with our range of site tested and proven products.

At Tyco we are always willing to work with you, combining our extensive mining experience and flow control know-how to help you solve the toughest process application problem.

Note:

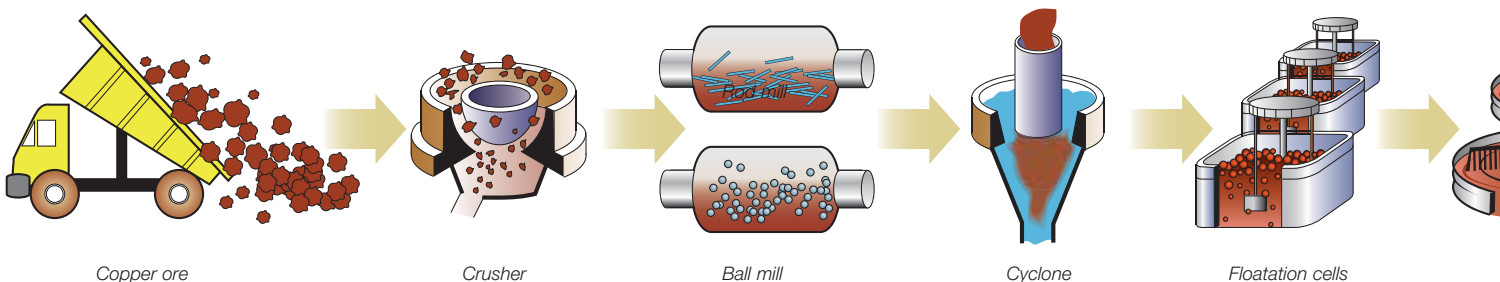
- 1 - To suit the customers piping specification
- 2 - Edge Seal Knife Gate Max Solids are 20%.
- 3 - Metal Seated knife gates Max Solids are 35%.
- 4 - C Control Valve is a modulating valve only. Not for 100% shutoff.
- 5 - KTM Single V-Ball will reduce slurry build-up in the body cavity.

Material Reference List

No	Description	Material	Deviation	Reason for Deviation
Hastelloy C276 / RTFE Seat				
12A	Seat Wire Wrap	Hastelloy	Stainless steel 302	We have not found any source for Hastelloy, up to now
12B	Seat Backing Ring UNS N10276	Hastelloy C276 ASTM B574	Stainless steel 304	
SMO 254 / RTFE Seat				
1	Body	SMO 254 (ASTM A351)	ASTM A351 CK - 3moun	ASTM A351 CK-3moun suggested material can be used as ASTM A351 We have not found any source for Hastelloy, up to now
2A	Disc	SMO 254 (ASTM A351)	ASTM A351 CK - 3moun	
12A	Seat Wire Wrap	Hastelloy	Stainless steel 302	
Alloy 2205 Duplex / RTFE Seat				
12A	Seat Wire Wrap	Hastelloy	Stainless steel 302	We have not found any source for Hastelloy, up to now
Alloy 20 / RTFE Seat				
12A	Seat Wire Wrap	Hastelloy or Alloy 20	Stainless steel 302	We have not found any source for Hastelloy, up to now

Valve Type	Design	Brand
Butterfly		
Wafer/flanged	Std. specification EPDM	Keystone
Wafer/flanged	Std Specification VITON	Keystone
Wafer	Std Specification TEFLON	Keystone
Wafer	Emmisions Specification	Neotecha
Wafer/lugged	High performance	Keystone, K-LOK/HI-L
Wafer/lugged	High performance	Keystone, K-LOK/HI-L
Flanged	Triple offset - zero leakage	Vanessa
Ball		
Screwed and flanged	Soft seat	Tyco/KTM/Richards/S
Pinch		
Flanged	Enclosed frame	Keystone
Knife gate		
Wafer/lugged	Uni-directional	Keystone F951/952
Lugged	Metal Seated	Rovalve S20
Wafer style	Bi-directional	Rovalve S17
Wafer style	Bi-directional - full port	Clarkson KGD
Flanged type	Bi-directional - full port	Clarkson KGA
Lugged style	Bi-directional - full port	L&M M145, M345, M
Wafer/flanged	Fabricated	Rovalve
Line Blind		
Mansafe lugged	Clarkson type KGL	Clarkson
Mansafe wafer	Clarkson type KLB	Clarkson
Control Valves		
Extended body	Series E / Series 2	Keystone
Knife gate	Air/hydraulic/electric on/off	Keystone/Rovalve/L&
Modulating control valve	Air/manual actuated	Clarkson 'C' Valve
Segment ball	Rotary actuator/positioner	KTM
Butterfly valves	Rotary actuator/positioner	Keystone/Neotecha/S
Butterfly valves	Actuated on/off	Tyco/KTM/Richards/S
Ball valves	Actuated on/off	Tyco/KTM/Richards/S
Pinch	Actuated on/off & control	Keystone

C o n v e n t i o n a l C o n c e n t



- Concentrators
- Smelters
- Electrolyte Refining

The diagram illustrates the sequential steps of copper production. It begins with **Thickeners**, showing two circular tanks with internal stirrers. An arrow leads to **Filter**, depicted as a large red cylindrical machine. Another arrow points to **Dryer**, shown as a series of stacked yellow and orange horizontal rollers. This is followed by **Concentrate**, represented by two brown, irregular rock-like shapes. An arrow then leads to **Smelting**, shown as a brown industrial building with a chimney. The final step is **Electrowinning**, depicted as a rectangular tank containing a grid of red electrodes. Each stage is labeled with its name in italics below the corresponding illustration.

Media Product Matrix

A v i t a l p a

Solvent Extraction Electrowinning (SX-EW)

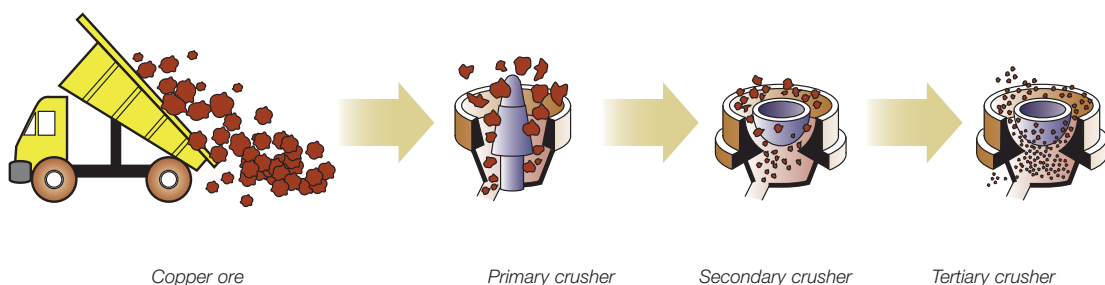
Our Media / Product matrix shows alternative valves for the same service. There is seldom a single solution, since pipe layout and space availability can affect the choice and the ever-increasing use of automation across the whole size range demands different solutions. The changing economics, technology and safety within copper production is driving innovation and new thinking, Tyco Global Copper product portfolio reflects 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.

Note:

- 1 - To suit the customers piping specification
- 2 - Edge Seal Knife Gate Max Solids are 20%.
- 3 - Metal Seated knife gates Max Solids are 35%.
- 4 - C Control Valve is a modulating valve only. Not for 100% shutoff.
- 5 - KTM Single V-Ball will reduce slurry build-up in the body cavity.

Valve Type	Design
Butterfly	
Wafer/lugged/flanged	Std specification EPDM
Wafer/lugged/flanged	Std specification Buna N
Wafer/lugged/flanged	Std Specification VITON
Wafer	Std Specification PTFE
Wafer	Emissions gland - polymer internals
Wafer/lugged	High performance standard
Wafer/lugged	High performance exotic materials ¹
Flanged	Triple offset - zero leakage
Ball	
Screwed and flanged	Soft seat
Pinch	
Flanged	Enclosed - open framed - manual
Knife gate	
Wafer/lugged	Unidirectional metal seated
Lugged style	Unidirectional heavy duty metal seated
Lugged style	Edge seal for shut-off
Wafer style	Bidirectional - full port
Flanged type	Bidirectional - full port heavy duty
Lugged	Bidirectional - full port Polymer lined
Line Blind	
Lugged	Mansafe Line Blind
Control Valves	
Knife gate	Air/Hydraulic/Electric on/off
Modulating control valve	Air/manual actuated
Segment ball	Rotary actuator/positioner
Butterfly valves	Rotary actuator/positioner
Butterfly valves	Actuated on/off
Ball valves	Actuated on/off
Pinch valves	Actuated on/off & control

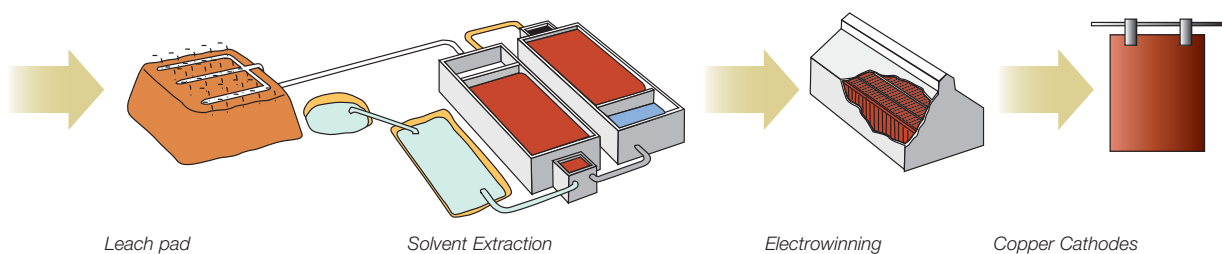
E l e c t r o w i n n



rt of your process

Brand	Dilute sulphuric acid	Acidic process slurry	Slurry tailings	Lime slurry	CCD wash	CCD underflow	Aeration air	Water	Re-use water	Process water	Barren organic	Concentrated H ₂ SO ₄	Electrolyte	Loaded organic	Pregnant leach	Raffinate	Rich electrolyte	Kerosene
Keystone					•		•	•	•	•								
Keystone							•	•	•	•	•		•	•	•	•	•	
Keystone					•		•		•	•	•		•	•	•	•	•	•
Keystone	•				•				•	•	•	•	•	•	•	•	•	•
Neotecha	•				•				•	•	•	•	•	•	•	•	•	•
Keystone/Sapag					•		•	•	•	•								•
Keystone/Sapag	•								•	•	•	•	•	•	•	•	•	•
Vanessa							•	•	•	•								
Tyco/KTM/Richards/Sapag								•	•	•								•
Keystone		•		•			•	•	•									
Keystone F951/F952 ³		•			•	•		•	•	•	•	•	•					
Roalve S20 ³								•	•	•								
Roalve S17 ²								•	•	•								
Clarkson KGD		•	•	•														
Clarkson KGA		•	•	•		•												
L&M 345			•															
Clarkson KLB						•												
Keystone/Roalve/L&M		•						•	•	•								
Clarkson 'C' Type Valve		•		•														
KTM ⁵			•															
Keystone/Neotecha/Sapag		•			•		•	•	•	•	•	•	•	•	•	•	•	
Tyco/KTM/Richards/Sapag		•			•		•	•	•	•	•	•	•	•	•	•	•	
Tyco/KTM/Richards/Sapag							•	•										
Keystone		•		•														

ing Process



Rotary Valves

A v i t a l p

Valves for the control and isolation of slurries throughout the copper process. Our installed base and experience over many years of operation and product improvement ensures the right valve for every application.



**Wafer Style
Resilient Seated
Butterfly Valve**

Brand:
Keystone

Size:
40-600mm

Pressure:
Up to 1600kPa

Temperature:
Up to 150°C

Flanges:
ASME 150 & AS 2129

Features:

- Wafer style body.
- Bi-directional, bubble tight resilient seated valve.
- Top & bottom inboard bearings.
- Super duplex trim.
- One piece thin stainless steel disc.
- Compact, light weight wafer style body Bi-directional bubble tight shut-off.



**Lugged Style
Resilient Seated
Butterfly Valve**

Brand:
Keystone

Size:
40-600mm

Pressure:
Up to 1600kPa

Temperature:
150°C

Flanges:
ASME 150 & AS 2129

Features:

- Lugged style bi-directional, bubble tight resilient seated valve.
- Top & bottom inboard bearings.
- Super duplex trim.



**Double Flanged
Butterfly Valve**

Brands:
Keystone, Sapag

Size:
600-1200mm

Pressure:
1000kPa (150psi)

Temperature:
120°C

Flanges:
ASME 150 & AS 2129

Features:

- Double flanged body.
- Bi-directional, bubble tight resilient seated valve.
- Top & bottom inboard bearings.
- One piece through shaft.



**PTFE Lined
Butterfly Valve**

Brand:
Neotecha

Size:
40-900mm

Pressure:
Up to 1000kPa

Temperature:
Up to 200°C

Flanges:
ASME 150 & AS 2129

Features:

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



**High Performance
Butterfly Valve**

Brands:
Keystone, K-LOK, HI-LOK

Size:
50-900mm

Pressure:
ASME 150, 300

Temperature:
Up to 535°C

Flanges:
ASME 150, 300 & AS 2129

Features:

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

art of your process



**High Performance
in Exotic Materials
Butterfly Valve**

Brands:
Keystone, K-LOK, HI-LOK

Size:
50-900mm

Pressure:
ASME 150, 300

Temperature:
Up to 535°C

Flanges:
ASME 150, 300 &
AS 2129

- Features:
- Alloy 2205 Duplex R.T.F.E. Seat
 - Alloy 20 R.T.F.E. Seat
 - Hastalloy C276 R.T.F.E. seat
 - SMO 254 R.T.F.E. seat



**Extended Body
Heavy Duty
Control Valve**

Brand:
Keystone

Size:
80-600mm

Pressure:
Up to ASME 600

Temperature:
Up to 230°C

Flanges:
ASME 150, 300 & 600

- Features:
- Series 2 & Series E extended body design protects downstream pipeline.
 - Replaceable liner.
 - Choice of trim options.
 - Modular actuator mounting.



**Rotary Process
Valve**

Brand:
Vanessa

Size:
80-3600mm

Pressure:
Up to ASME 900

Temperature:
Up to 815°C

Flanges:
ASME 150, 300, 600 &
900

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



**V-Port Control
Valve**

Brand:
KTM

Size:
25-200mm

Pressure:
ASME 150

Temperature:
Up to 260°C

Flanges:
ASME 150 & 300

- Features:
- Full & Reduced bore designs.
 - V-Notch design allows equal percentage characteristics for precise control.
 - One piece body design.

Knife gate Valves

A v i t a l p

Heavy duty knife gate isolation valves
for the heaviest copper slurries.

Actuated solutions for all plant
conditions make us your first choice.



Uni-directional Knife gate valve

Brands:
Keystone F951 & F952

Size:
50-600mm

Pressure:
1000kPa

Temperature:
Up to 230°C

Flanges
ASME & AS 2129

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

Uni-directional Knife gate valve

Brand:
Rovalve S20

Size:
50-900mm

Pressure:
1000kPa (150psi)

Temperature:
-29°C to 455°C

Flanges
ASME & AS 2129

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

Bi-directional Edge Seal Knife gate valve

Brand:
Rovalve S17

Size:
50-600mm

Pressure:
1000kPa (150psi)

Temperature:
- 29°C to 205°C

Flanges
ASME, DIN & PN

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

Heavy Duty Slurry Isolation valve

Brand:
Clarkson KGA

Size:
80-1500mm

Pressure:
690kPa (100psi)

Temperature:
Up to 200°C

Flanges
ASME & AS 2129

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

Heavy Duty Slurry Isolation Knife gate valve

Brand:
Clarkson KGD

Size:
50-600mm

Pressure:
1380kPa (200psi)

Temperature:
Up to 150°C

Flanges
ASME, AS 2129 & PN

- Features:
- Bi-direction shut off.
 - Wafer style body.
 - Replaceable full port elastomer sleeves.
 - No metal parts in the flow path.

a r t o f y o u r p r o c e s s



**High Pressure
Slurry Isolation
valve**

Brand:
Clarkson KGF

Size:
80-900mm

Pressure:
2100kPa

Temperature:
Up to 150°C

Flanges:
ASME & AS 2129

Features:

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



**Polymer Lined
Knife gate valve**

Brand:
L&M 345

Size:
50-1500mm

Pressure:
Up to 6200kPa (900psi)

Temperature:
-29°C to 180°C

Flanges
ASME & AS2129

Features:

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



Pinch valve

Brand:
Keystone F639

Size:
25-1000mm

Pressure:
Up tp 1000kPa

Temperature:
230°C

Flanges:
ASME 150 & AS2129

Features:

- Rugged design slurry control valve.
- Full bore design.
- Bi-directional shut-off.
- A range of sleeve materials available.



**Slurry Modulating
Control valve**

Brand:
Clarkson 'C' Valve

Size:
25-250mm

Pressure:
700kPa

Temperature:
Up to 200°C

Flanges
ASME & AS 2129

Features:

- Designed specifically for slurry throttling.
- No metal parts in flow path.
- Abrasive resistant elastomer sleeve.

Actuators, Controls & Process Automation

A v i t a l p

We offer everything from simple on/off isolation, to modulating process control & extend through to complete networked solutions using any of the network protocols.



Pneumatic actuators

Brands:
Keystone, Morin, Biffi

Type:
Double acting
Spring return

Torque:
Up to 250,000Nm

Temperature:
Up to 90°C

Supply Pressure:
Up to 1050kPa

Electric actuators

Brands:
Keystone, Biffi

Type:
1/4 turn
Multi turn

Torque:
Up to 400,000Nm

Temperature:
-40°C to 60°C

Voltage:
Single & three phase

Hydraulic actuators

Brands:
Keystone, Morin & Tyco

Type:
Linear
1/4 turn

Force/Torque:
Up to 400,000Nm

Temperature:
-30°C to 100°C

Supply Pressure:
Up to 10,345kPa

Positioners

Brands:
Keystone, Avid

Type:
Analogue
Programmable

Input Current:
4-20mA

Temperature:
-40°C to 85°C

Supply Pressure:
Up to 827kPa

art of your process

						
	H1	HSE	DP	PA	SDS	ASI Interface
Typical Applications:	Process industry, smart instrumentation, factory automation	Process industry, factory automation	Process industry, factory automation	Process industry, smart instrumentation	Process industry, factory automation	Process industry, factory automation
Data Rates (bits/sec):	31.25k	100M	9.6K-12M	31.25k	125/250/500K	167k
Communication technique:	Single master/ multi master	Ethernet	Master/slave peer to peer	Gateway	Producer/consumer peer to peer	Master/slave
Media access algorithm:	Token passing	Token passing	Token passing	Token passing	CSMA/CD/NDA	Cyclic polling
Supported media:	Optical fibre, radio propagation (planned), twisted pair	Optical fibre, radio propagation (planned), twisted pair	Optical fibre, twisted pair	Twisted pair	Optical fibre, twisted pair	Pair
Maximum number of nodes ⁹ :	32 per segment	–	127 per network	32 per segment	64 per network	62 per network
Deterministic:	Yes	Yes	Yes	Yes	Yes	Yes
Intrinsic safety:	Yes	No	No	Yes	No	No
Bus powered:	Yes	No	No	Yes	No	Yes
ASIC available:	Planned	Planned	Yes	Yes	Yes	Yes
Physical-layer standard:	IEC 61158-2 IEC 61784	IEC 61158	IEC 61158 IEC 61784	IEC 61158-2 IEC 61784	IEC 62026-3	IEC 62026-2
Applicable standards:	IEC 1158 ISA S50	IEC 1158 ISA S50	EN 50170 (part 2) DIN 19245	DIN 19245	ISO 11898	IEC 947-5-2D, EN 60947, DIN VDE 0660/208

Notes:

H1 & H2 are Foundation Fieldbus terms that the IEC does not use.

Profibus-DP also has an extended command set called DPV1, described in extensions to EN 50170, Version 1.0, November 1996.

DeviceNet & SDS are application-layer utilities that use CAN for the physical layer.

CSMA/CD: Carrier sense multiple access/collision detection; NDA: nondestructive bit wise arbitration.

Service Solutions

Tyco Flow Maintenance is a dedicated team of flow control equipment repair specialists.

We can offer you an unrivalled network of strategically located service centres across the country to maintain all types and brands of process equipment.

A v i t a l p



Valve & Actuator Repairs

Remove, overhaul, install and re-commissioning.

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 & Asi).

Loop check.

Calibration, reconditioning and testing.

Trouble shooting.



Instrumentation

Servicing and calibration
Devices such as pH, temperature, flow, conductivity, and pressure.

Most voltages/pressures.v

Trouble shooting.



Safety Relief Valves

Repair & service all manufacturers safety relief valves from steam, gas, air and liquid service.

Accredited testing facility.

Pilot operated – soft seat/hard seat.

Direct spring – conventional or balanced.

Tank vacuum/pressure relief.

Safety selector valves.

Anderson Greenwood & Crosby repair and testing centre.

Workshop or on-site testing, repairs & calibration.

I n s t a l l a t i o n • S e r v i c e • R e p a i r •

a r t o f y o u r p r o c e s s



ISO & NATA Pressure

Pressure test to most international API and ASME standards.

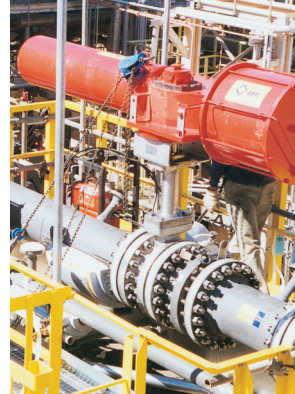


Pump Equipment

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 erosion and corrosion resistance.



Pneumatic/Hydraulic Equipment

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



Field Services

Installation, commissioning, service, repair and on-going maintenance.

Repacking.

Calibration.

In-situ safety relief valve.

Testing ASME I.

In-situ valve lapping.

Emissions monitoring.

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