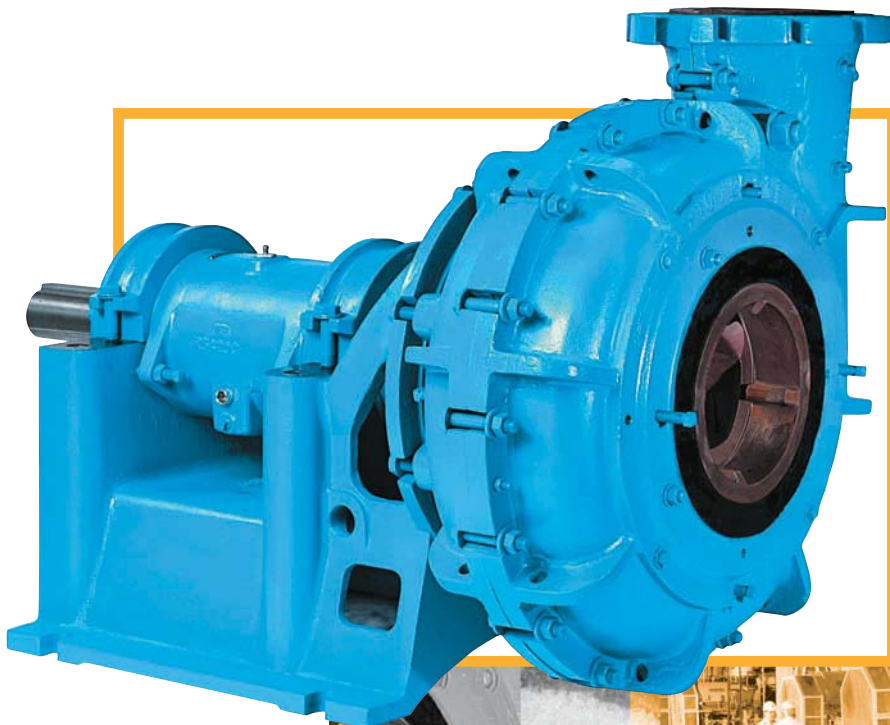


Goulds SRL

Designed for Abrasive and
Corrosive Slurry Services



ITT

motralec

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Goulds SRL



The Goulds Model SRL is the original rubber-lined slurry pump. It is the result of nearly a century of proven experience in the design, manufacture and field operation of slurry pumps. The SRL is built to stand up to the toughest services, while providing maximum reliability and extreme ease of maintenance. Available in a wide variety of natural and synthetic elastomers, the SRL, with its heavy duty design, extra thick liners and multiple impeller options, provides you with the right pump for your application along with years of dependable service even under the most severe operating conditions.



Designed for the Most Severe and Abrasive Duties

- ◆ Capacities to 20,000 GPM (4542 m³/h)
- ◆ Heads to 164 feet (50 m)
- ◆ Temperatures to 250°F (121°C)
- ◆ Pressures to 400 PSIG (2758 kPa)

Design Features

Large Diameter Impeller

- ◆ Develops higher heads at lower operating speeds
- ◆ Open and closed designs to suit most applications
- ◆ Variety of elastomers and metal alloys available
- ◆ Shearpeller® for stringy and froth-laden slurries

Field Replaceable Liners

- ◆ Precision molded and bonded to metal skeleton
- ◆ FRP volute support to resist collapse. Sizes > 8" (200 mm)
- ◆ Extra thick rubber design for severe duties

Heavy Duty Mechanical Design

- ◆ Large diameter shaft for low deflection and longer life
- ◆ Oil lubricated cartridge bearing assembly
- ◆ Heavy duty bearings for reliability and long life

Gland Seal Options

- ◆ Standard and low dilution seal water, or mechanical seal
- ◆ Replaceable XH-800 shaft sleeve for maximum life

Services

Primary Metals:	SAG/Ball Mill Discharge, Cyclone Feed and Tailings
Mineral Processing:	Slurry Transfer, Float Cells and Thickener Underflow
Non-Metallic Mining:	Clay Slurries, Phosphate, Soda Ash and Potash
Sand & Gravel:	Sand and Aggregate Slurries, Tailings
Power Utility:	Absorber Recycle, Gas Cooling, Filter Feed, Flue Gas Desulfurization and Gypsum Tailings
Chemical:	Acid Transfer, Leach Feed
Pulp & Paper:	Lime Slurries and Fly Ash
General Industry:	Foundry Sand, Plant Waste and Ash Slurries

Bearing Assembly

- ◆ Cartridge design
- ◆ Precision machined cast iron bearing housing
- ◆ Large diameter AISI 1045 steel shaft
- ◆ Heavy-duty anti-friction bearings
- ◆ Minimum 5-year bearing L_{10} life
- ◆ Oil lubrication
- ◆ Grease packed labyrinth and lip seals
- ◆ External oil level sight gauges on both sides

Shaft Sleeve

- ◆ Hard Ni-Cr coated XH-800 alloy sleeve
- ◆ 64 Rockwell C coating will not chip or crack
- ◆ Ground 6-8 RMS surface finish
- ◆ 316 SS base alloy for corrosion resistance
- ◆ Special alloys available

Suction Wearplate Liner

- ◆ Standard on SRL-XT models and SRL-C pumps with discharges 6" and larger
- ◆ Facilitates quick replacement of wear part
- ◆ Reduced downtime and replacement cost
- ◆ Choice of elastomers and polyurethanes
- ◆ Optional CRM wearplate available

Ceramic-Rubber Media (CRM) Liners

The primary Ball/SAG mill discharge is one of the most severe duties in mineral processing. The suction wearplate is subjected to rapid wear due to high solids concentration and coarse nature of the slurry. Goulds developed a proprietary process to locate and mold ceramic rods into the rubber liner for the optimum combination of hardness and resilience for extended wear life. Field trials confirmed CRM liner life of two to four times that of natural rubber alone. Since the CRM liner retains its shape longer, it also extends the life of the other wear parts for an even lower life cycle cost.



Bearing Cartridge Assembly



XH-800 Shaft Sleeves



Optional Natural Rubber CRM Wearplate for 10x10-28 SRL-XT

Rubber

The Goulds Model SRL utilizes a soft natural rubber blend which offers the best combination of resilience and tear resistance for maximum wear life in abrasive and corrosive slurries. In addition to the soft natural rubber, Goulds offers a wide variety of natural and synthetic rubbers as well as polymers in a range of hardness to suit almost any slurry application.

FRP & Rubber Composite Hybrid Liners

All SRL model liners are molded to a metal skeleton and bolted to the casing for a secure fit. However, on larger pumps, the amount of unsupported rubber in the volute and discharge neck area can make them prone to collapse under adverse operating conditions as well as difficult to handle and install. Goulds molds a fiberglass (FRP) shell to the casing liners for added support on pump sizes 12x10-25 SRL-C and larger. This unique hybrid liner design is collapse resistant with improved fit for easy handling and assembly.



FRP & Rubber Composite Hybrid Liners

Elastomer Selections and Application Guide for SRL Pumps

Please use the following chart as a general guide only. Refer to factory for specific elastomer recommendations.

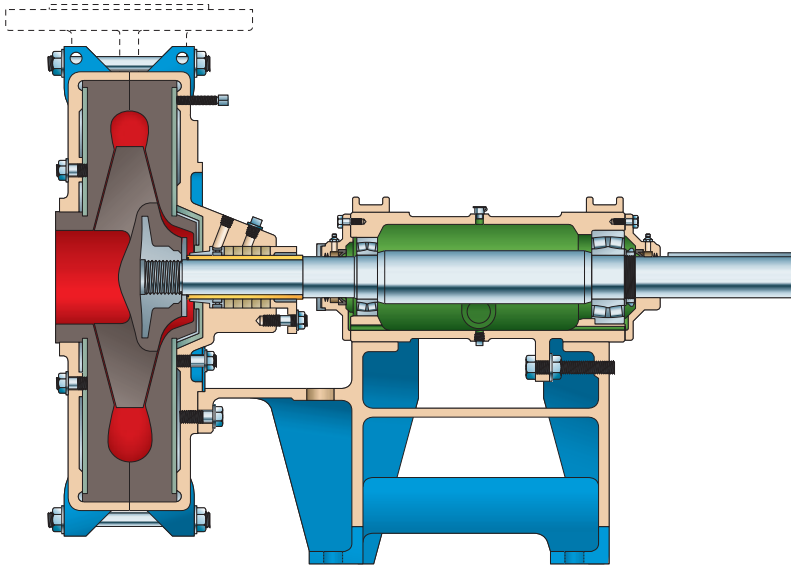
E = Excellent G = Good P = Poor

Elastomer Type	Hardness Durometer Shore A	Temperature		pH		Resistance to		
		Maximum		Min.	Max.	Abrasion	Moderate Chemicals	Hydro- carbons & Oils
Natural Rubber	40	154°F	68°C	4.5	12	E	G ⁽¹⁾	P
Natural Rubber (Soft)	36	150°F	66°C	4.5	12	E	G ⁽¹⁾	P
Natural Rubber (Hard)	50	180°F	82°C	4.5	12	E	G ⁽¹⁾	P
Natural Rubber (Food Grade)	38	150°F	66°C	4.5	12	E	G ⁽¹⁾	P
Neoprene	60	212°F	100°C	3.0	12	G	G ⁽¹⁾	G
Nitrile (60)	60	220°F	105°C	3.5	12	G	G ⁽¹⁾	E
Chlorobutyl	50	250°F	121°C	1.0	12	G	E	P
Hypalon®	55	230°F	110°C	<1.0	14	G	E	G
Ethylene Propylene	70	230°F	110°C	1.0	12	G	E	P
Viton®	70	300°F	149°C	<1.0	14	P	E	E
Urethane	81	149°F	65°C	3.0	11	E ⁽²⁾	G ⁽¹⁾	E
Urethane (Hi-Temp)	83	212°F	100°C	3.0	11	E ⁽²⁾	G ⁽¹⁾	E

(1) Poor for oxidizing chemicals and strong acids

(2) Fine particles only (150 mesh or less)

Sectional View Model SRL



SRL Heavy-duty slurry pumps

The SRL series rubber-lined horizontal slurry pumps are used in a variety of applications in mineral processing and general industry. The open impeller is designed to handle most types of slurry in abrasive and corrosive applications, including some containing air or froth.

It is typically used for slurries containing solids up to a nominal 1/8" (3.2 mm) in diameter. A wide range of natural and synthetic elastomers are available to handle slurries containing a variety of chemicals.

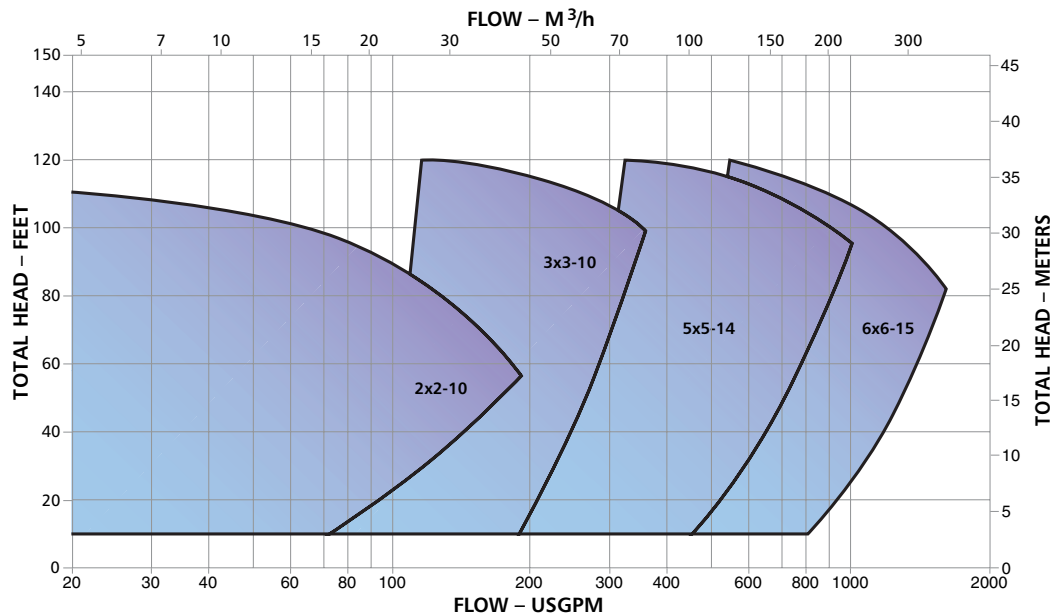
- ◆ Sizes: 2" to 6" (50 mm-150 mm)
- ◆ Flows to: 1,500 GPM (341 m³/h)
- ◆ Heads to: 135 feet (41 m)
- ◆ Solids to: 1/8" (3.2 mm)
- ◆ Pressures to: 232 PSIG (1600 kPa)

Design Features and Benefits

- ◆ Precision-molded, thick bolt-in liners
Long-life and secure assembly in casing
- ◆ Large diameter semi-open impeller
Low speeds and extended wear life
- ◆ Axially adjustable bearing assembly
Maintains peak operating efficiency and life
- ◆ Short, rigid shaft and heavy-duty bearings
Low deflections and reliable service
- ◆ Packed gland option or mechanical seal
Standard, low, or no dilution arrangements
- ◆ Precision-machined cast iron frame
Sturdy, vibration-free support
- ◆ Five discharge positions available
Suitable for most piping arrangements



Hydraulic Coverage





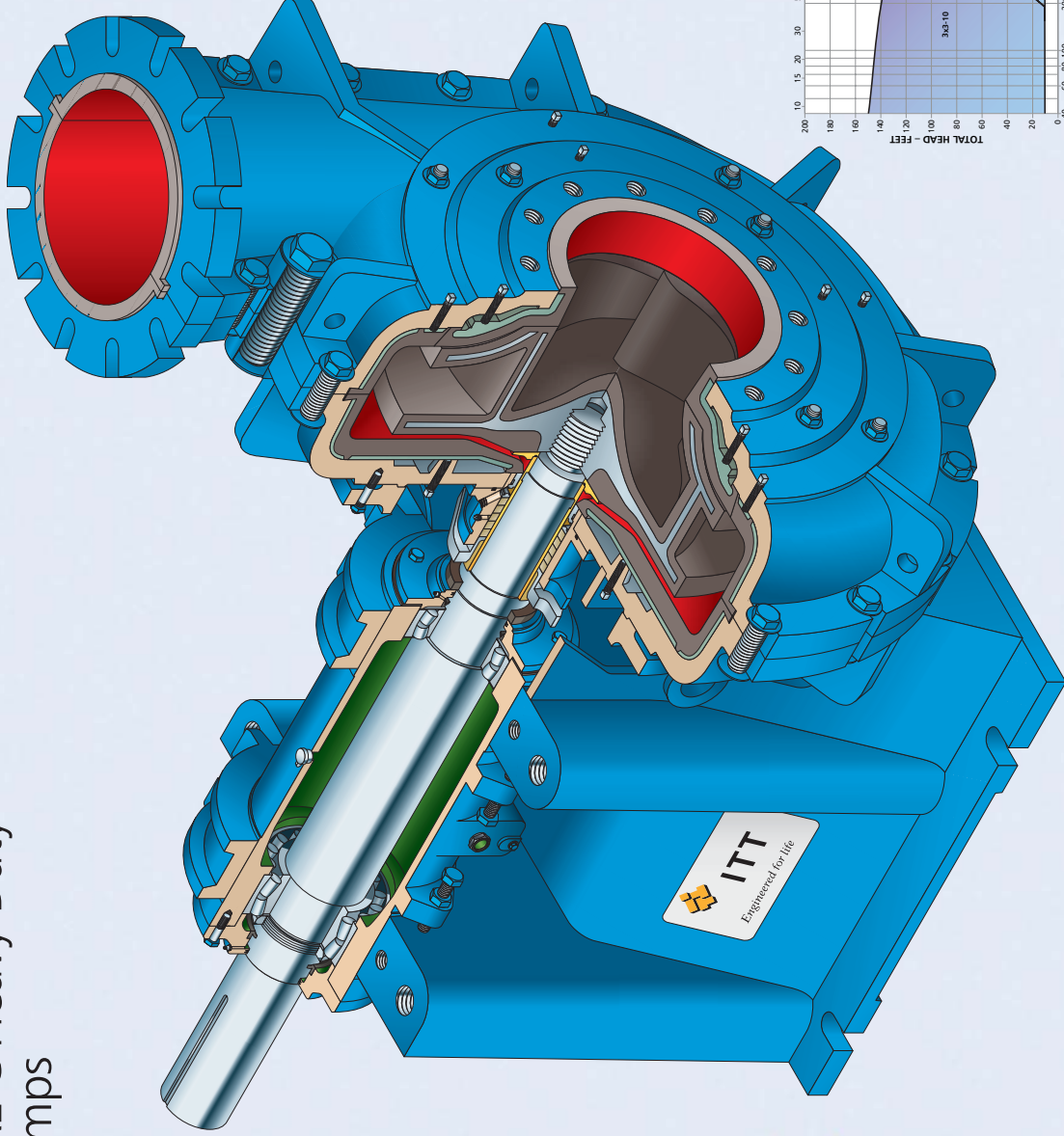
Model SRL-C Heavy-Duty Slurry Pumps

The SRL-C series rubber-lined horizontal slurry pumps utilize proven hydraulics to deliver high efficiencies for pumping abrasive and/or corrosive slurries. The closed impeller is designed to handle very abrasive slurries with high concentrations of solids in mining, mineral processing and general industry. The Goulds SRL-C pump is typically used for slurries containing solids up to 1/4" (6.4 mm) in diameter and heavy concentrations of solids. A choice of natural and synthetic elastomers is available to suit most slurry applications.

- Sizes: 3" to 20" (75 mm-500 mm)
- Flows to: 20,000 GPM (4542 m³/h)
- Heads to: 164 feet (50 m)
- Solids to: 1/4" (6.4 mm)
- Pressures to: 400 PSIG (2758 kPa)



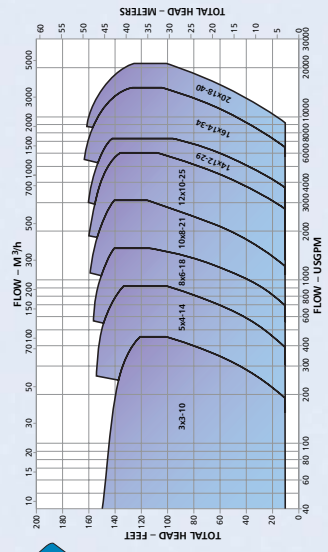
Model SRL-C 20x18-40



Design Features and Benefits

- High-efficiency design
- Very low power costs
- Proven hydraulics for slurry service
- Extended parts wear life
- Thick bolt-in liners
- Positive assembly in casing for extended life
- Large liners reinforced with a fiberglass shell
- Resist liner collapse under adverse conditions
- Large diameter closed impeller
- Lower speeds and extended wear life
- Replaceable suction wearplate available on 6" (150 mm) and larger pumps
- Provides reduced downtime and lower replacement cost
- Axially adjustable bearing assembly
- Maintains peak operating efficiency and life
- Short, rigid shaft and heavy-duty bearings
- Low-deflections and reliable service
- Packed gland option or mechanical seal
- Standard, low, or no dilution arrangements
- Precision-machined cast iron frame
- Sturdy, vibration-free support
- Five discharge positions available
- Suitable for most piping arrangements

Hydraulic Coverage



Goulds SRL-XT

Designed with Extra-Thick Rubber for the Most Severe and Abrasive Applications

- ◆ Sizes: 6" (150 mm) to 12" (300 mm)
- ◆ Flows to: 10,000 GPM (2270 m³/h)
- ◆ Heads to 140 feet (42 m)
- ◆ Solids to: 1/2" (13 mm)
- ◆ Pressures to: 250 PSIG (1725 kPa)

Design Features and Benefits

1. Rubber up to three times the conventional thickness
 - Handles coarse material with improved abrasion resistance, longer wear life and less downtime
2. Precision molding of rubber-to-metal skeletons, bolted-in liners
 - Greater dimensional accuracy; fast, easy replacement; reduced downtime
3. Tongue-and-groove fit between casing halves and liners
 - Positive locking of liner into casing, resists collapse
4. Front removal of suction wearplate
 - Allows for inspection and ease of replacement without disturbing discharge
 - Allows for rotation of suction wearplate to maximize efficiency and wear life
5. Large ACME impeller threads
 - Allows for quick, easy removal of impeller, less downtime
6. Impeller release collar
 - Relieves pressure on impeller allowing easy removal, less downtime
7. Heavy-duty oil lubricated bearing cartridge with labyrinth (Taconite)-style seals
 - Maximum bearing and shaft life, less downtime
 - External impeller adjustment maintains peak operating efficiency and maximizes life
8. Packed gland or mechanical seal options
 - Standard full flush, low or no dilution available
9. Free-standing pump with rugged cast iron pedestal
 - Allows mounting of pump directly on concrete foundations
 - Provides safe work environment, pump won't tip
 - Allows for mounting of large motors overhead, saves space

Services

Sag Mill	Thickener Feed
Rod & Ball Mill	Flotation Feed
Primary and Secondary Cyclone	Tailings



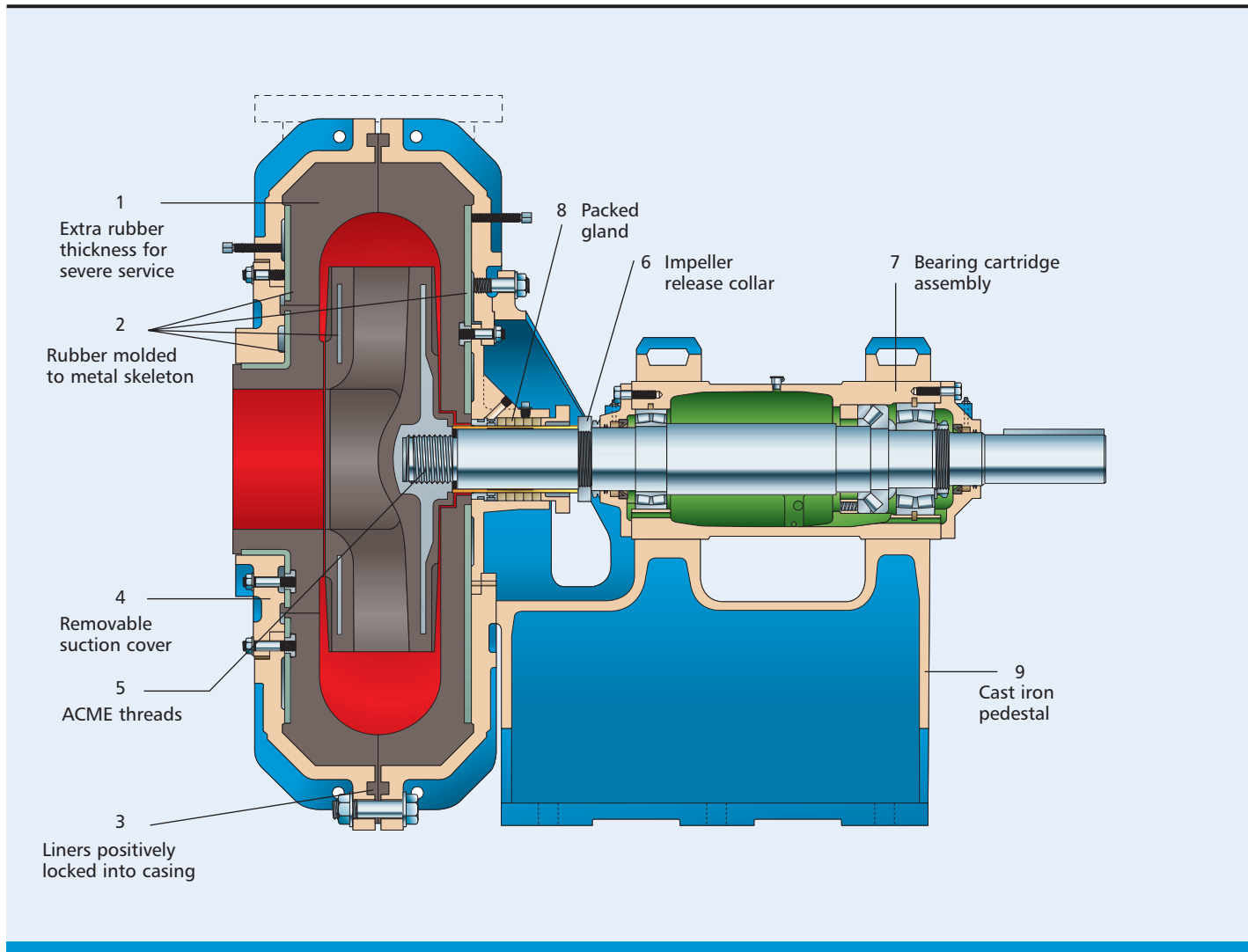
SRL-XT 14x12-36 on Ball Mill
Discharge Service



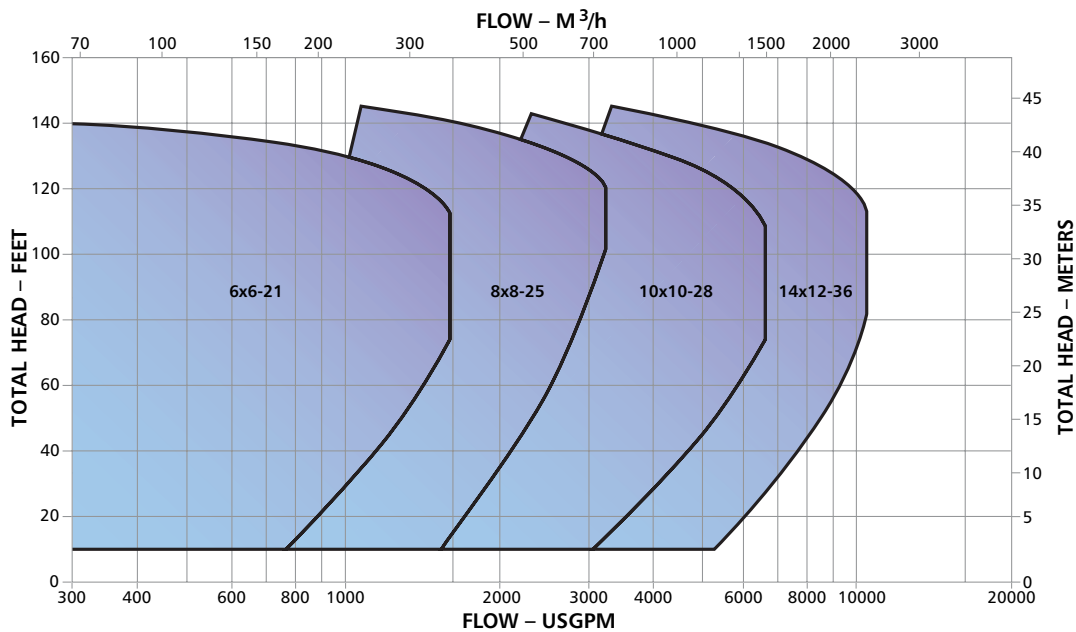
Ball Mill (Top Photo)
and SAG Mill

The SRL-XT has extra-thick rubber components which are up to three times thicker than standard rubber-lined pumps. Its heavy duty design makes it ideal for the toughest applications, especially where coarser slurries are involved.

Sectional View Model SRL-XT



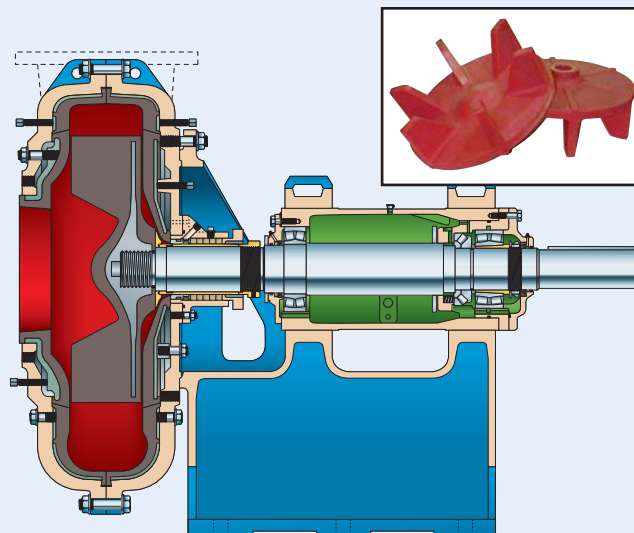
Hydraulic Coverage



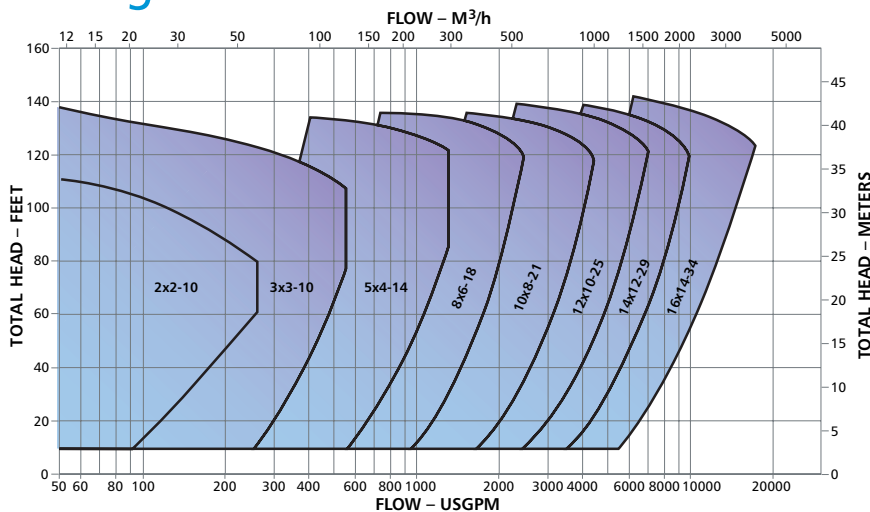
Sectional View Model SRL-S

The SRL-S SHEARPELLER® provides the solution for applications with entrained air, froth, and stringy solids.

The SHEARPELLER's innovative patented design successfully handles large stringy solids. Also, due to its unique tapered Radial vane design, the SRL-S can handle up to a Froth Factor of 3 without oversizing the pump, providing significant cost savings. This design is also very effective in handling entrained air without air binding. Available on the 2x2-10 SRL and all sizes of the SRL-C up through the 16x14, the SHEARPELLER® is completely interchangeable with the standard models.



Hydraulic Coverage

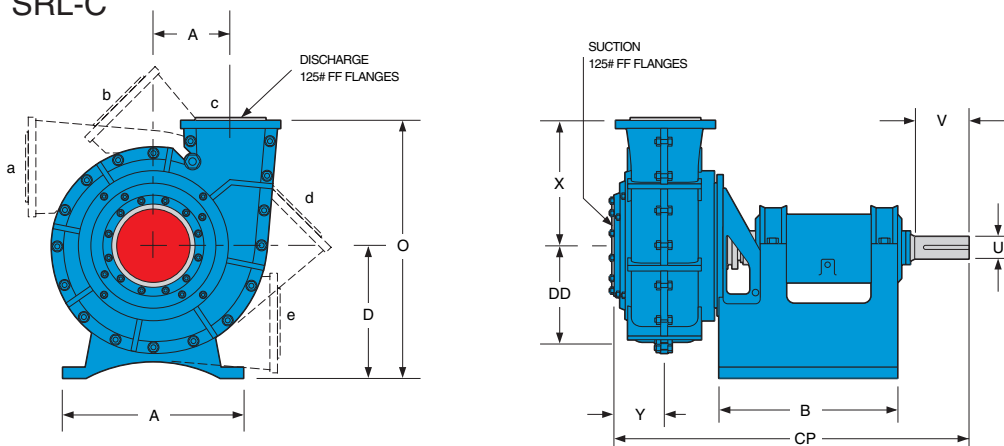


Engineering Data

Model	Size	Frame	Cartridge	ShearPELLER	Suction wearplate	Hybrid Liners	Maximum Working Pressure (PSI)						Weight Lbs. (Kg.)
							75	125	140	225	250	400	
SRL	2 x 2 - 10	0		X			X	X		X			380 (172)
SRL	3 x 3 - 10	1	X				X						500 (227)
SRL	5 x 5 - 14	2	X				X						1000 (436)
SRL	6 x 6 - 15	2	X				X			X			1300 (590)
SRL-C	3 x 3 - 10	1	X	X			X	X		X			650 (295)
SRL-C	5 x 4 - 14	2	X	X			X	X		X			1100 (499)
SRL-C	8 x 6 - 18	3	X	X	X		X	X		X			2850 (1293)
SRL-C	10 x 8 - 21	3	X	X	X		X	X		X	X		3400 (1542)
SRL-C	12 x 10 - 25	4	X	X	X	X			X	X	X		4300 (1950)
SRL-C	14 x 12 - 29	5	X	X	X	X			X	X	X	X	6700 (3039)
SRL-C	16 x 14 - 34	6	X	X	X	X			X	X			9100 (4127)
SRL-C	20 x 18 - 40	7	X		X	X			X		X	X	15300 (6938)
SRL-XT	6 x 6 - 21	3	X		X		X			X			3450 (1565)
SRL-XT	8 x 8 - 25	4	X		X			X			X		4900 (2222)
SRL-XT	10 x 10 - 28	5	X		X			X			X		7550 (3424)
SRL-XT	14 x 12 - 36	6/7	X		X			X			X		10420 (4725)

Dimensions

Models SRL and SRL-C

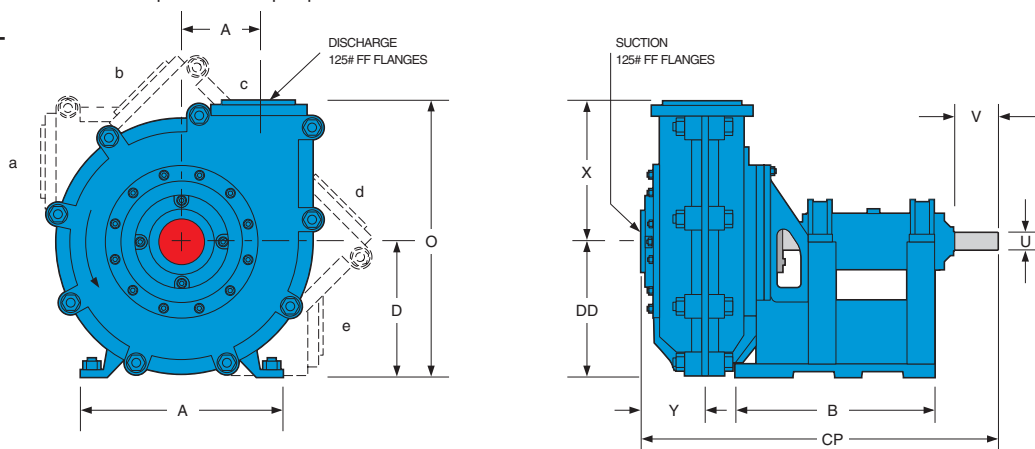


BARE PUMP DIMENSIONS														
Size and Type	Suct.	Disch.	No.	Frame A	B	CP	D	DD	O	U	V	X	Y	Z
2 x 2 - 10 SRL	2.0	2.0	0	9.5	12.2	27.7	9.0	8.2	17.1	1.1	3.4	3.1	2.3	5.5
3 x 3 - 10 SRL	3.0	3.0	1	12.4	15.2	34.8	12.5	10.1	21.2	1.6	5.0	6.7	3.1	6.2
5 x 5 - 14 SRL	5.0	4.0	2	15.0	17.1	41.1	15.5	12.7	30.0	2.2	7.4	14.5	3.9	9.5
6 x 6 - 15 SRL	6.0	6.0	2	15.0	17.1	43.3	15.5	14.0	31.5	2.2	7.4	16.0	5.1	9.7
3 x 3 - 10 SRL-C	3.0	3.0	1	12.4	15.2	36.9	12.5	11.6	22.5	1.6	5.0	10.0	4.6	7.9
5 x 4 - 14 SRL-C	5.0	4.0	2	15.0	17.1	42.2	15.5	12.0	30.0	2.2	7.4	14.5	4.6	8.5
8 x 6 - 18 SRL-C	8.0	6.0	3	18.5	29.3	61.4	20.5	15.7	36.5	3.3	11.4	16.0	7.4	11.5
10 x 8 - 21 SRL-C	10.0	8.0	3	18.5	29.3	64.2	20.5	17.6	38.5	3.3	11.4	16.0	8.9	15.0
12 x 10 - 25 SRL-C	12.0	9.75	4	34.0	34.0	65.5	22.0	20.7	48.2	4.0	9.6	24.2	8.5	14.7
14 x 12 - 29 SRL-C	14.0	11.75	5	41.0	42.0	72.9	28.0	25.7	53.0	4.7	12.0	25.0	9.4	19.6
16 x 14 - 34 SRL-C	16.0	13.2	6	49.5	39.5	80.4	34.0	31.1	61.5	4.9	14.0	27.5	10.9	23.7
20 x 18 - 40 SRL-C	20.0	17.0	7	48.0	55.5	93.7	37.0	32.7	69.7	5.5	9.7	32.7	13.4	27.2

NOTES:

1. All dimensions are in inches.
2. Discharge positions a,b,c,d and e are standard on all pump sizes.
3. Not for construction, installation or application purposes.
4. SRL-S dimensions are the same as the equivalent SRL-C pump sizes.

Model SRL-XT



BARE PUMP DIMENSIONS														
Size and Type	Suct.	Disch.	A	B	CP	D	DD	O	U	V	X	Y	Z	
6 x 6 - 21 SRL-XT	6.0	5.2	18.6	29.3	63.2	20.5	17.6	38.5	3.3	11.3	18.0	8.9	15.0	
8 x 8 - 25 SRL-XT	8.0	8.0	34.0	34.0	68.7	22.0	25.1	46.7	4.0	9.6	24.7	11.2	14.0	
10 x 10 - 28 SRL-XT	9.5	10.25	41.0	42.0	74.7	28.0	29.5	57.2	4.75	9.5	29.2	12.2	17.1	
14 x 12 - 36 SRL-XT	13.38	12.0	49.5	39.5	81.1	34.0	34.7	68.0	5.5	12.5	34.0	13.2	22.1	

NOTES:

1. All dimensions are in inches.
2. Discharge positions a,b,c,d and e are standard on all pump sizes.
3. Not for construction, installation or application purposes.



PRO Services®
 Extending
 Equipment Life...

Product Repair (all types and brands of rotating equipment)

- Service Center Repair
- Field Service
- Parts Supply

Reliability Improvement

- Inventory Management
- Replacement/Exchange
- Turnkey Repair/Installation
- Training

Optimization of Assets

- Predictive Analysis/Condition Monitoring
- Root Cause Failure Analysis
- Pump & System Assessments
- Upgrades – Mechanical & Hydraulic
- Maintenance Management/Contract Maintenance

- Technical Expertise
- Fast Turnaround
- Factory Trained Service Personnel
- Emergency Service – 24 hours/day, 7 days/week
- Quality
- ISO and Safety Certified

PROSMART

ProSmart™ encompasses the latest technology* in condition monitoring to transform your Predictive Maintenance program into a Plant Profitability program.

It provides a cost-effective solution to maintaining uptime on all of your rotating equipment. ProSmart continuously monitors, analyzes, and annunciates an alarm when critical criteria is not met. By identifying, diagnosing, and sounding an alert to potential equipment problems before they have a chance to manifest into unexpected downtime or catastrophic failure, ProSmart helps to assure plant profitability.



ProSmart delivers benefits that go right to the bottom line.

- Extends equipment life
- Optimizes costly “walk-arounds” by skilled personnel
- Can help reduce overall equipment failures and the cost of downtime
- Sends alerts prior to potential catastrophic process failures
- Automatically alerts personnel to machine problems
- Consolidates data for equipment optimization

ProSmart is a wireless machinery monitoring system that collects and analyzes operating data automatically every 5 seconds. Integrated analysis capabilities provide enhanced data and reporting functions.

(*Patent pending)

PUMPSMART

PumpSmart® is the latest advancement in pump control and protection to reduce energy consumption, increase uptime and decrease maintenance cost. It allows the pump to be right-sized to the application by dialing in the speed and torque which increases flow economy, reduces heat and vibration, and improves overall system reliability.

- **Simplified Pump Control** — PumpSmart was designed specifically to optimize pumping applications and can be used to control a single pump or coordinate between multiple pumps without the need for an external controller.
- **Pump Protection** — PumpSmart guarantees to protect the pump from upset conditions with patented sensorless pump protection algorithms.
- **Smart Flow** — PumpSmart features a sensorless flow function for centrifugal pumps that can calculate the flow of the pump within ± 5% of the pump rated flow.
- **Drive for the DCS** — While most VFDs can only provide basic information, PumpSmart offers unparalleled insight to the pump operation which allows for smoother process control and efficiency.
- **Pump Experts** — PumpSmart is a variable speed drive with pump-specific algorithms imbedded into the drive. With over 150 years of pump knowledge, let the pump experts take responsibility of your pump system.



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