

Maximizing Asset Uptime with High Quality Asset Data

July 8, 2021

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PROMETHEUS GROUP

The Business Impact of Poor Asset Information

Improved Maintenance Productivity



- Increase maintenance 'wrench-time'
- Added cycles for deferred maintenance
- Improved asset information context for informed troubleshooting & repair

Increased Operational Efficiency



- Reduce downtime from equipment failure
- Lower mean-time-to-repair
- Increase asset availability

Reduced MRO Supply Chain Costs



- Enables accurate prediction of spares needs
- Facilitates identification of obsolete inventory
- Minimizes expedited procurement

Decreased EH&S Risks



- Accurate, complete information enables informed decisions, reduces risks for maintenance staff and operators

Improved Auditability



- Improved financial accountability
- Ensures regulatory compliance
- Reduces product liability risks from quality

Achievement of Operational Excellence



- Enables achievement of top quartile performance through advanced maintenance techniques such as reliability-centered-maintenance, risk-based inspection, performance analytics

Ensuring accurate, complete asset master data can have a direct impact on reducing environmental, health & safety risks, improving operational performance and maintaining regulatory compliance.

Accurate Asset Information Aligned with ISO 14224 Standards

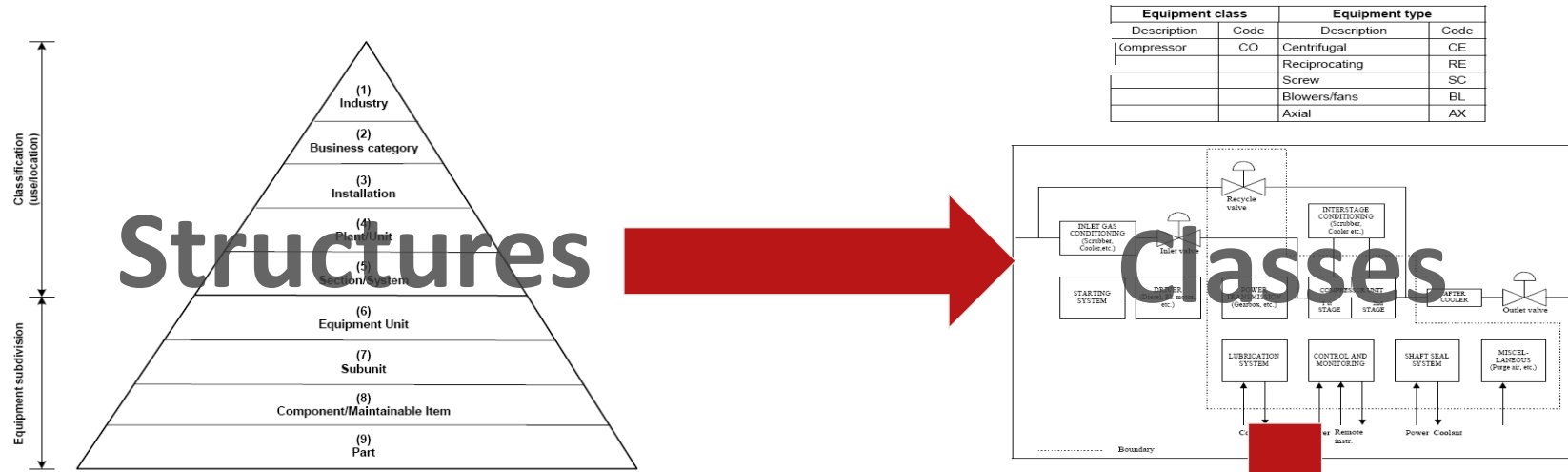


Figure 4 —Taxonomy classification

No.	Notation	Description
1.0	Design-related causes - general	Failure related to inadequate design for operation and/or maintenance, but no further details known
1.1	Improper capacity	Inadequate dimension/capacity
1.2	Improper material	Improper material selection
1.3	Improper design	Inadequate equipment design or configuration (shape, size, technology, configuration, operability, maintainability, etc.)
2.0	Fabrication, installation and assembly-related causes - general	Failure related to fabrication or assembly, but no further details known
2.1	Fabrication error	Manufacturing or processing failure
2.2	Installation error	Installation or assembly failure (assemblies after maintenance not included)
3.0	Failure related to operation/maintenance - general	Failure related to operation/use or maintenance of the equipment, but no further details known
3.1	Off design service	Off design or unintended service conditions, e.g. compressor operation outside envelope, pressure, over speed, etc.
3.2	Operating error	Mistake, misuse, negligence, oversight, etc. during operation
3.3	Maintenance error	Mistake, misuse, negligence, oversight, etc. during maintenance
3.4	Wear and tear	Failure caused by wear and tear resulting from normal operation of the equipment unit
4.0	Failure related to management - general	Failure related to management issues, but no further details known
4.1	Documentation error	Failure related to procedures, specifications, drawings, reporting, etc.
4.2	Management error	Failure related to planning, organization, quality assurance, etc.
5.0	Miscellaneous - general^a	Causes that do not fall into one of the categories listed above
5.1	Unknown ^a	No information available related to the failure cause

^a The data acquirer should judge which is the most important cause if more than one exist, and try to avoid the 5.0 and 5.1 codes.

Equipment class	Compressors					
Subunit	Power transmission	Compressor	Control and monitoring	Lubrication system	Shaft seal system	Miscellaneous
Maintainable item / Part	Gearbox/variable drive Bearings Coupling to the driver Lubrication Seals Coupling to the driven unit	Casing Rotor with impellers Balance piston Interstage seals Radial bearing Thrust bearing Shaft seals Internal piping Valves Antisurge system including recycle valve and controllers Piston Cylinder liner Packing	Control Actuating device Monitoring Internal power supply Valves	Oil tank with heating system Pump with motor Check valves Coolers Filters Piping Valves Lube oil	Oil tank with heating Reservoir Pump with motor/gear Filters Valves Buffer gas Seal oil Dry gas seal Seal gas Scrubber	Base frame Piping, pipe support and bellows Control-isolation and check valves Coolers Silencers Purge air Magnetic bearing control system Flange joints Others

A Real-World Test Case

MFR/VENDOR NAME 1

SICK

P/N 1

A3M60A-BEPB014x17



Here is the data
we were given



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The Prometheus Response within 24 hours

(from automated enrichment)



Search item		
		MFR/VENDOR_NAME_1
		SICK
		P/N_1
		A3M60A-BEPB014x17
		MFR/VENDOR_NAME_2
		SICK
		P/N_2
		1053332
		UNILEVER
		PORT SUNLIGHT
CLASS	CHARACTERISTICS NAME	CHARACTERISTIC VALUE
ENCODER	TYPE	ABSOLUTE
ENCODER	INPUT RATING	10 TO 32 VDC
ENCODER	OUTPUT RATING	
ENCODER	PULSE PER REVOLUTION	16384 PPR
ENCODER	ACTUATION TYPE	
ENCODER	TORQUE	1 NM
ENCODER	ROTATION LIFE CYCLE	
ENCODER	TERMINAL TYPE	5-PIN M12 MALE X FEMALE
ENCODER	OUTPUT CONFIGURATION	
ENCODER	SIZE	12 MM SHAFT
ENCODER	MATERIAL	STAINLESS STEEL SHAFT,ALUMINUM HOUS
ENCODER	IP RATING	IP64,IP67 SHAFT,IP67 HOUSING
ENCODER	TEMPERATURE RATING	-30 TO 80 DEG C
ENCODER	MOUNTING TYPE	FLANGE
ENCODER	CERTIFICATION/STANDARD	CE,CULUS
ENCODER	ADDITIONAL FEATURES	A3M60 PROFIBUS,RS485 PROFIBUS INTEF
ENCODER	URL	https://www.sick.com/ag/en/encoders/a
ENCODER	COMMENTS	ACTIVE



Here is a better description of the spare part that you need

The Prometheus Response within 24 hours







(from automated search of data previously enriched by Prometheus)

		P/N_2	P/N_2	P/N_2	P/N_2
CLASS	CHARACTERISTIC NAME	CHARACTERISTIC VALUE	CHARACTERISTIC VALUE	CHARACTERISTIC VALUE	CHARACTERISTIC VALUE
		1053332			
ENCODER	TYPE	ABSOLUTE	ABSOLUTE	ABSOLUTE	ABSOLUTE
ENCODER	INPUT RATING	10 TO 32 VDC	10 TO 32 VDC	10 TO 32 VDC	10 TO 32 VDC
ENCODER	OUTPUT RATING				
ENCODER	PULSE PER REVOLUTION	16384 PPR	16384 PPR	8192 PPR	16384 PPR
ENCODER	ACTUATION TYPE				
ENCODER	TORQUE				
ENCODER	ROTATION LIFE CYCLE				
ENCODER	TERMINAL TYPE	5-PIN M12 MALE X FEMALE			
ENCODER	OUTPUT CONFIGURATION				
ENCODER	SIZE	12 MM SHAFT	12 MM	12 MM	12 MM
ENCODER	MATERIAL	STAINLESS STEEL SHAFT,ALUMIN	STAINLESS STEEL SHAFT,ALUMIN	STAINLESS STEEL SHAFT,ALUMIN	STAINLESS STEEL SHAFT,ALUM
ENCODER	IP RATING	IP64,IP67 SHAFT,IP67 HOUSING	IP67	IP67	IP67
ENCODER	TEMPERATURE RATING	-30 TO 80 DEG C	-40 °C TO +80 °C	-40 °C TO +80 °C	-40 °C TO +80 °C
ENCODER	MOUNTING TYPE	FLANGE	HOLLOW SHAFT FLANGE	HOLLOW SHAFT FLANGE	HOLLOW SHAFT FLANGE
ENCODER	CERTIFICATION/STANDARD	CE,CULUS			
ENCODER	ADDITIONAL FEATURES	A3M60 PROFIBUS,RS485 PROFIBUS INTERFACE			
ENCODER	AVAILABLE_UK_REGION_WEBLINK		https://uk.rs-online.com/web/	https://uk.rs-online.com/web/	https://uk.rs-online.com/web/
ENCODER	AVAILABLE_UK_REGION_VENDOR		RS Components	RS Components	RS Components
ENCODER			03457 201 201	03457 201 201	03457 201 201
ENCODER					
ENCODER					

Here are the potential functionally equivalent parts that you have in other regional facilities

The Prometheus Response within 24 hours

(from automated search of Prometheus and OEM AIN repositories)

Search item			Potential Functional Equivalent				
MFR/VENDOR_NAME_1			MFR/VENDOR_NAME_1	MFR/VENDOR_NAME_1	MFR/VENDOR_NAME_1	MFR/VENDOR_NAME_1	MFR/VENDOR_NAME_1
SICK			PEPPERL+FUCHS	ADVANCED MICRO CONTROLS	IFM EFECTOR	IMS SYSTEMS	SENSICK
P/N_1			P/N_1	P/N_1	P/N_1	P/N_1	P/N_1
EVM58N-011IZR0BN-1213			DC25F-C1S3BE	RO6341	63811	1030017	
MFR/VENDOR_NAME_2			MFR/VENDOR_NAME_2	MFR/VENDOR_NAME_2	MFR/VENDOR_NAME_2	MFR/VENDOR_NAME_2	MFR/VENDOR_NAME_2
FOCKE					TWK-ELEKTRONIK	SAN CASSIANO	
P/N_2			P/N_2	P/N_2	P/N_2	P/N_2	P/N_2
12788154				RO-0360-I24	TRK58-KA4096R4096C1MK04	10.1923	
UNILEVER			UNILEVER	UNILEVER	UTOPIA REPOSITORY	UTOPIA REPOSITORY	
HAMMOND			SIMCOE	JEFFERSON CITY	-	-	
CLASS	CHARACTERISTICS NAME	CHARACTERISTIC VALUE	CHARACTERISTIC VALUE	CHARACTERISTIC VALUE	CHARACTERISTIC VALUE	CHARACTERISTIC VALUE	CHARACTERISTIC VALUE
ENCODER	TYPE	ABSOLUTE	MULTI-TURN ABSOLUTE	ABSOLUTE	INCREMENTAL	ABSOLUTE	ABSOLUTE
ENCODER	INPUT RATING	10 TO 32 VDC	10 TO 30 VDC	4.75 TO 26.4 VDC	10 TO 30 VDC	9 TO 36 VDC	10 TO 32 VDC
ENCODER	OUTPUT RATING						
ENCODER	PULSE PER REVOLUTION	16384 PPR	65536 PPR	4096 PPR	360 PPR	4096 PPR	8192 PPR
ENCODER	ACTUATION TYPE						
ENCODER	TORQUE	1 NM	1 NM		1NM AT 20 DEG C	1 NM	
ENCODER	ROTATION LIFE CYCLE						
ENCODER	TERMINAL TYPE	5-PIN M12 MALE X FEMALE	M12 SOCKET X PLUG	M12 CONNECTOR	M18 CONNECTOR	M12 CONNECTOR	M12 CONNECTOR
ENCODER	OUTPUT CONFIGURATION						
ENCODER	SIZE	12 MM SHAFT	10 X 20 MM SHAFT	3/8 IN SHAFT	12 MM SHAFT	58 DIA X 83 LG MM	12 MM SHAFT
ENCODER	MATERIAL	STAINLESS STEEL SHAFT,ALUMINUM HOUSING	STAINLESS STEEL SHAFT,HOUSING F	STAINLESS STEEL SHAFT	ALUMINUM HOUSING	ALUMINUM HOUSING	DIE-CAST ALUMINUM HOUSIN
ENCODER	IP RATING	IP64,IP67 SHAFT,IP67 HOUSING	IP64,IP67 SHAFT,IP67 HOUSING	IP67 HOUSING	IP64 SHAFT,IP67 HOUSING	IP66/IP67/IP69K HOUSING	IP67 HOUSING
ENCODER	TEMPERATURE RATING	-30 TO 80 DEG C	-40 TO 85 DEG C	-40 TO 85 DEG C	-40 TO 100 DEG C	-40 TO 85 DEG C	-20 TO 80 DEG C
ENCODER	MOUNTING TYPE	FLANGE	CLAMPED FLANGE	SERVO/SQUARE FLANGE	CLAMPED FLANGE	CLAMPED FLANGE	FACE MOUNT
ENCODER	CERTIFICATION/STANDARD	CE,CULUS					CE,CULUS
ENCODER	ADDITIONAL FEATURES	A3M60 PROFIBUS,RS485 PROFIBUS INT	RF RADIAL EXIT POSITION,BINARY OU	VITON SEAL,DURACODER,SSI	MULTITURN,BINARY END CONNEC	+/-0.2%,2-BYTE CONTROL,BINA	ATM60-D4H13X13,26 BIT
ENCODER	URL	https://www.sick.com/ag/en/encoders	https://files.pepperl-fuchs.com/w	https://www.amci.com/files/3	https://www.ifm.com/restserv	http://www.twk.de/data/pdf/1	https://www.mysick.com/sag
ENCODER	COMMENTS	ACTIVE	ACTIVE	ACTIVE-MODEL AVAILABLE NOT	NO LONGER AVAILABLE - ARCHI	ACTIVE	ACTIVE
						Delivery time approx. 8 weeks	
						€832.24 *	\$931.00
Image							

Here are other potential functionally equivalent parts

The Prometheus Response within 24 hours

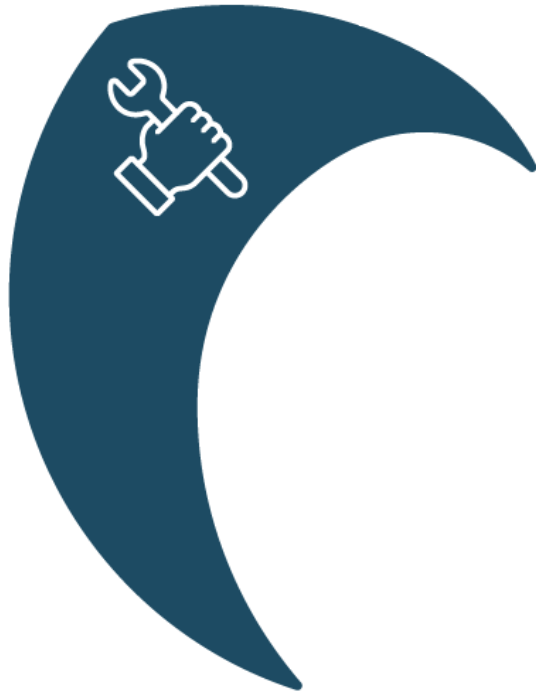
(from automated search of Prometheus and OEM AIN repositories)

AVAILABLE_UK_REGION_WEBLINK	https://www.kempstoncontrols.co.uk/A3M60A-BEPB014X17/Sick/sku/884937	https://uk.vision-supplies.com/sick-a3m60a-bepb014x17	https://www.ebay.co.uk/itm/1053331-A3M60A-BDPB014X171053332-A3M60A-BEPB014X17-/233426168717	https://eltra-trade.com/products/sick-a3m60a-bepb014x17
AVAILABLE_UK_REGION_VENDOR	Kempston Controls	VISION-SUPPLIES	eBay	ELTRA TRADE
TELEPHONE	01933 656290	+44 (0) 1926 611745		+421 552 601 099
LEAD_TIME_TO_DELIVER	STANDARD DELIVERY WITH IN 1 - 2 DAYS			

Here are other potential sources of spares in your region

The Prometheus Master Data as a Service (MDaaS) Solution

Prometheus Methodology: “Get it Clean, and Keep it Clean”



1

BUILD

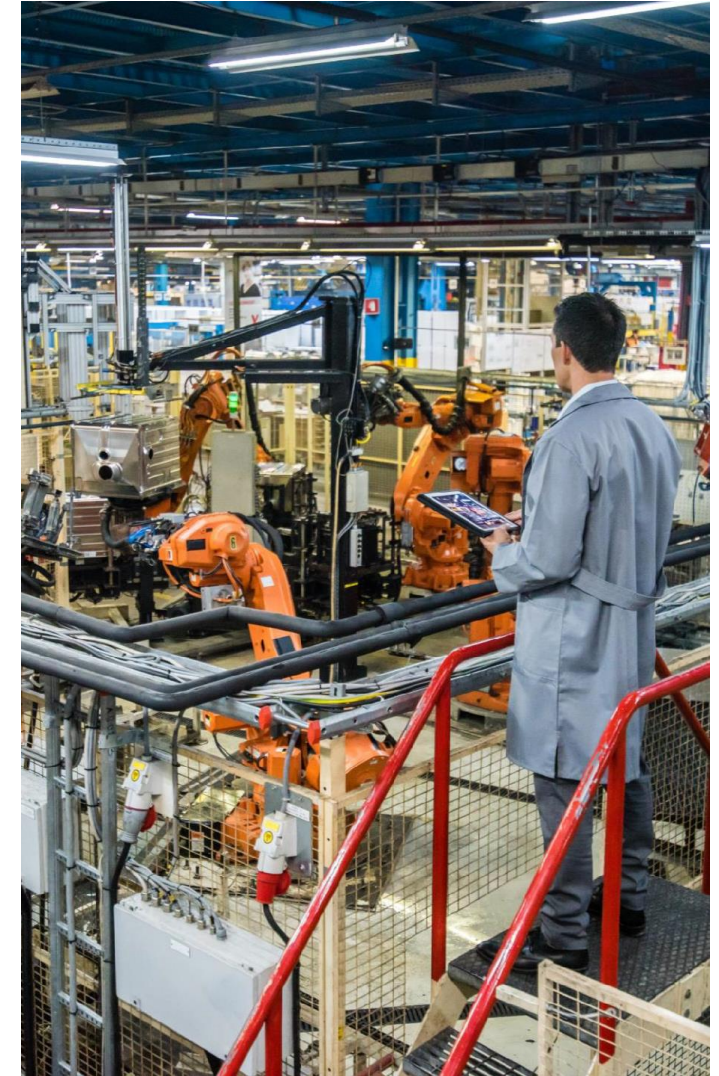
- Internationally
- Recognized
- Standards
- Business Rules
- Enterprise Taxonomy
- Data Quality Culture



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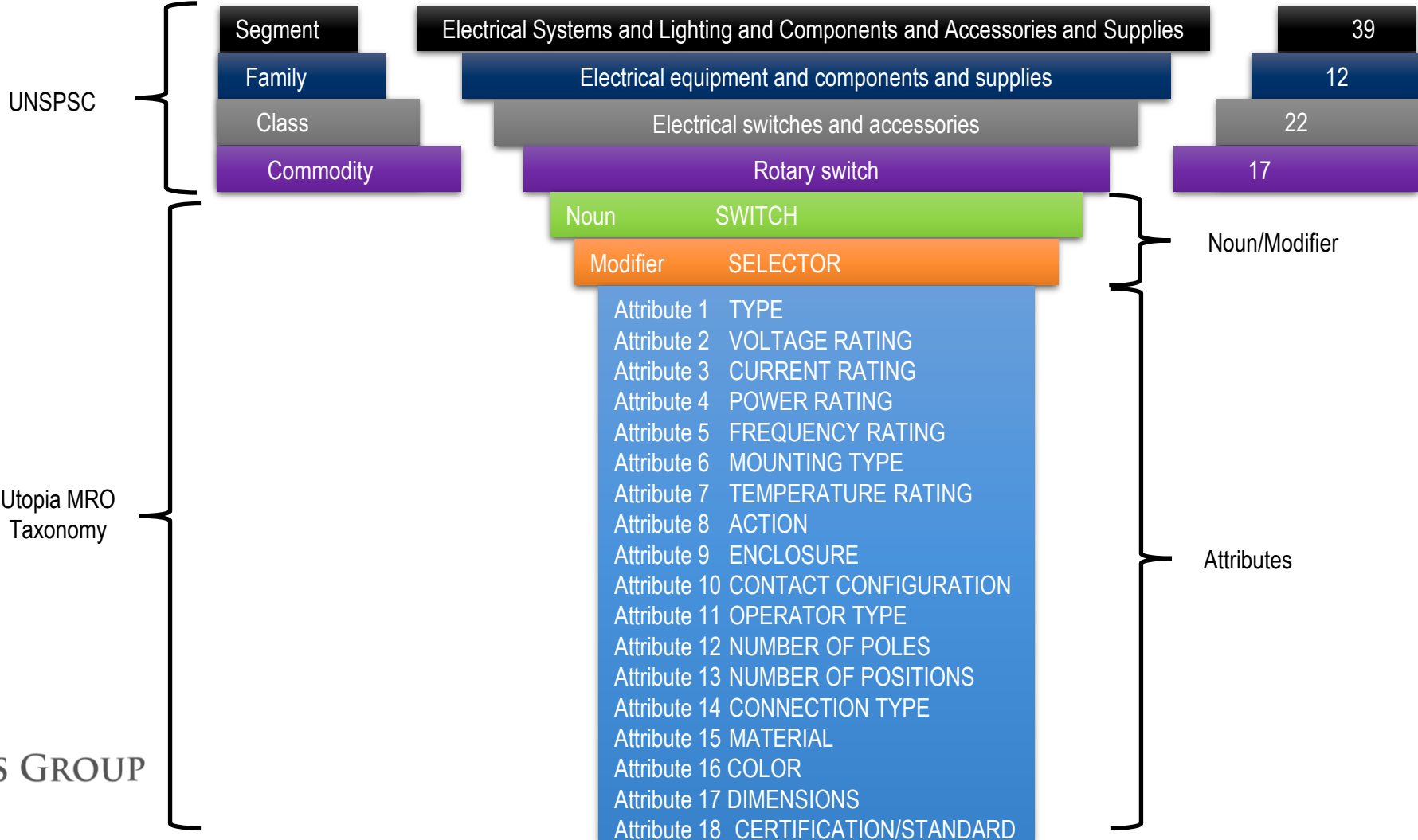
Prometheus UNSPSC Standard Taxonomy for Material Master

- Prometheus UNSPSC taxonomy templates provide a structured, logical and consistent “language” which serves as a framework that helps define the data structure for materials.
- Reference model templates are pre-built noun-modifier pairs (NMP)
 - averaging seven to eight (7 to 8) defined attributes
 - *Organized into categories for noun and sub-categories based on the modifier, with over 4,000 noun-modifier pairs available*
 - *Attributes help define physical characteristics: size, weight, material, color, mechanical performance, electrical performance, thermal and shock / vibration, etc.*
- Each attribute is listed by priority, and has a data type, possible value, standardized unit of measure (UOM) and standardized abbreviations or acronyms to assist with short and long-text description automation

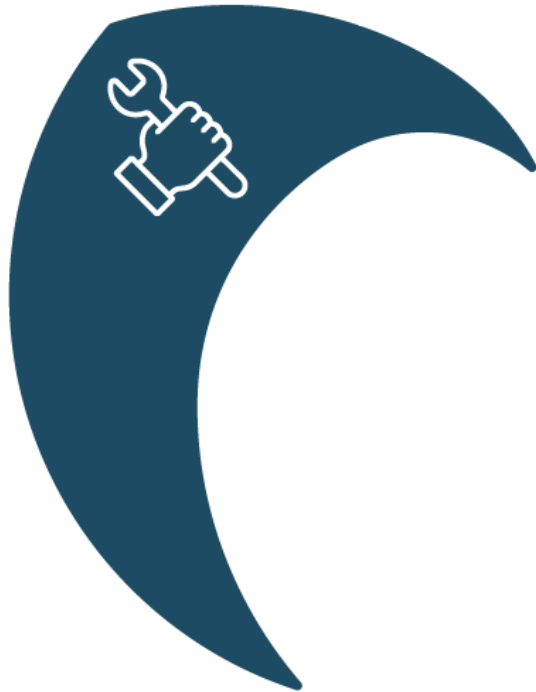


Prometheus UNSPSC Standard Taxonomy for Material Master

Take advantage of industry-leading standards such as UNSPSC as well as Utopia’s MRO Taxonomy to build a data dictionary as the basis for cleansing, monitoring and governance.



Prometheus Methodology: “Get it Clean, and Keep it Clean”



1

BUILD

- Internationally
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Master Data as a Service (MDaaS)

Capture Collate Compare Crowd



MDaaS Capture

- Mobile App for Image Capture
- Cloud-based Image Management
- Intelligent Image Processing
- Unstructured to Structured Data Extraction
- Crowd and AI-based Data Enrichment

Combine Classify Cleanse Create



MDaaS Enrich

- Standards-centric Classification
- Drawing-based and manufacturing website-based data mining
- Machine Learning-based Data Cleansing & enrichment

Connect Control



MDaaS Connect

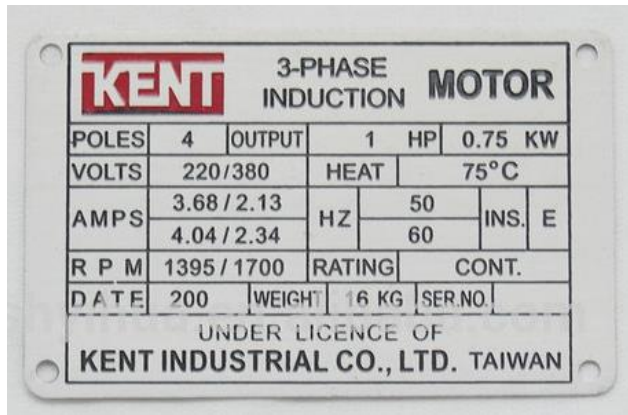
- Comprehensive Connector Suite
- Data Governance accelerators
- Cross-System Integration and control



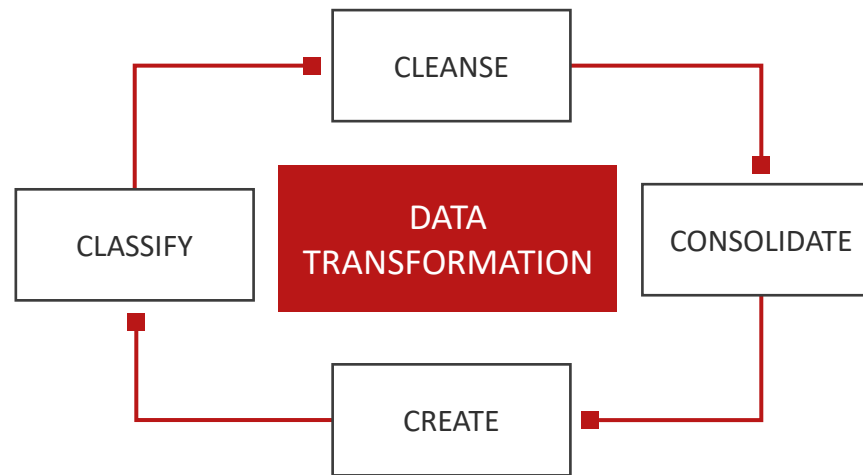
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As-built Equipment Manufacturer/Model Information

Asset Master Data Enrichment via Prometheus' 4Cs Methodology



Equipment 'brass tag' information collected from plant walkdowns, engineering documents or other systems of record



Cleanse

- NMA identification (Noun, Modifier, Attribute) or Equipment Class identification
- Parse data into appropriate attributes
- Normalize and standardize

Create (Enrich)

- Create and/or enrich attributes (databases, web scraping, catalogs, contact with data source)
- Physical verification (onsite "boots on the ground")

Consolidate (De-Dupe)

- De-duplicate data within a database, |or among multiple databases
- Transfer history

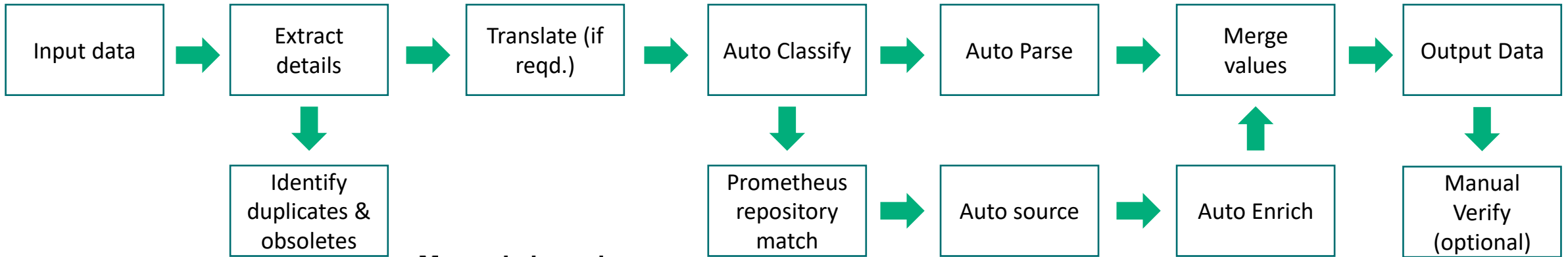
Classify

- Industry standards (UNSPSC, PIDX, eClass, eOTD)
- ISO14224 and Prometheus Customized
- Customized smart numbering



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Master Data Enrichment via Prometheus' 4Cs Methodology



Manual cleansing

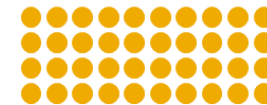
- Record by record, inspections
- Effort: #data records × #attributes

Expert/Rule-based

- Use expert knowledge to derive rules
- Effort: #attributes

Data mining-based

- Statistical, leveraging available data
- Effort: Much smaller than #attributes

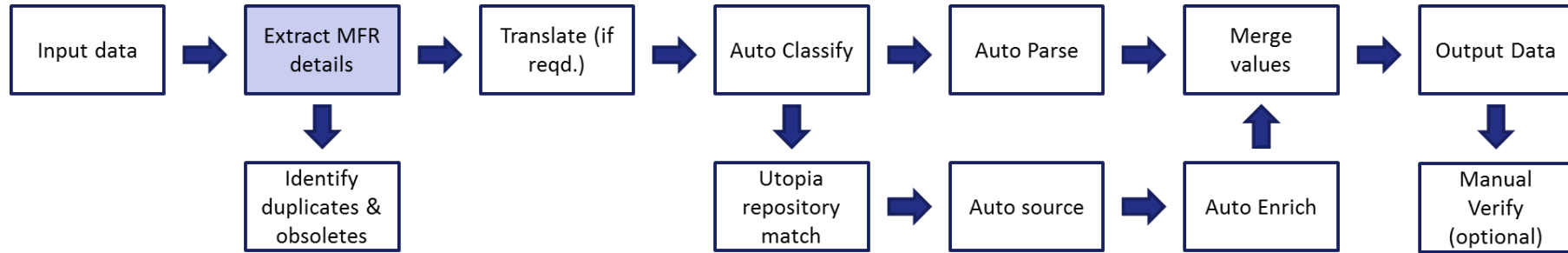


Effort

Computing power

Intellectual property

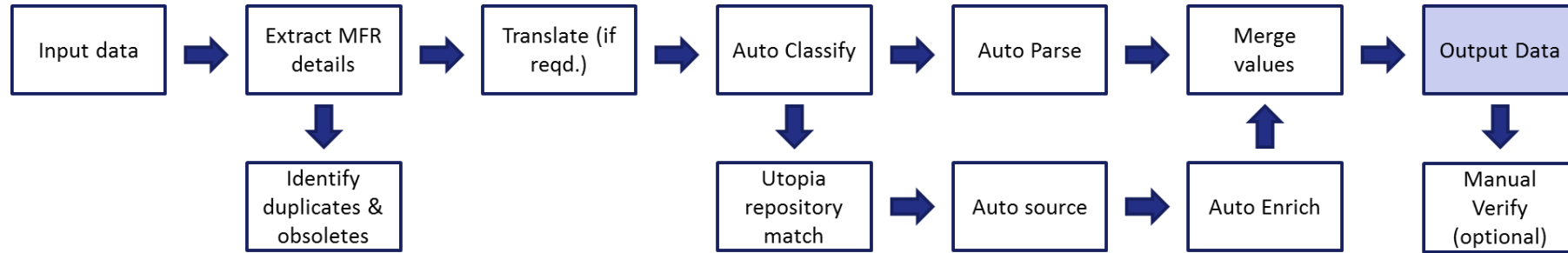
Extract Manufacturer & Part Number Details



Missing manufacturer name, part number and characteristic data is mined from long text description by Utopia automated data enrichment environment.

MATERIAL	SHORT DESCRIPTION	LONG DESCRIPTION	MANUFACTURER	OEM PART NUMBER	STANDARDIZED_M ANUFACTURER	STANDARDIZED_M ANUFACTURER_PART NUMBER
769105	TCP INDICATOR, ALLOY, 80K YIELD	TCPINDICATOR,ALLOY,80KYIELDTCPIndicator, Alloy,80kyield,HalliburtonRTARef#101842125			HALLIBURTON	#101842125
791967	ASSY, SHOE, GUIDE, JOINT, 13-5/8"	ASSY, SHOE, GUIDE, JOINT, 13-5/8" ASSEMBLY, CASING, 13-5/8", 88.20 LB/FT, GRADE TN125HC, TSH WEDGE 523, PAL3/CTP3, RANGE 3, W/ GUIDE, SHOE, 13-5/8", MODEL L2020, GRADE Q-125, H523 BOX, 88.20 LB/FT, CEMENT NOSE W/5.00 TUBE, SPECIAL ID AND AFU BAR, WEATHERFORD PN L2020NLH523Q1 2A004			WEATHERFORD	L2020NLH523Q1
3034760	CASING, PRE DRILLED, 7IN 23PSI, L 80	CASING, PRE DRILLED, 7IN 23PSI, L 80, HYDRIL 563, PAL 1/CTP 2, HI-FLOW PRE- DRILLED LINER, PERFORATED 218-228 HOLES X 3/8IN DIAMETER PER FOOT FROM 3 FT FROM BOX END TO, 2 FT FROM PIN END (5,000 FT OR +122 JOINTS), NOTE: ID SHOULD BE DE-BURRED. 3RD PARTY INSPECTOR TO VERIFY EBURRING PRIOR TO, SHIPMENT.			HYDRIL	563

Standardize & Generate Output Descriptions



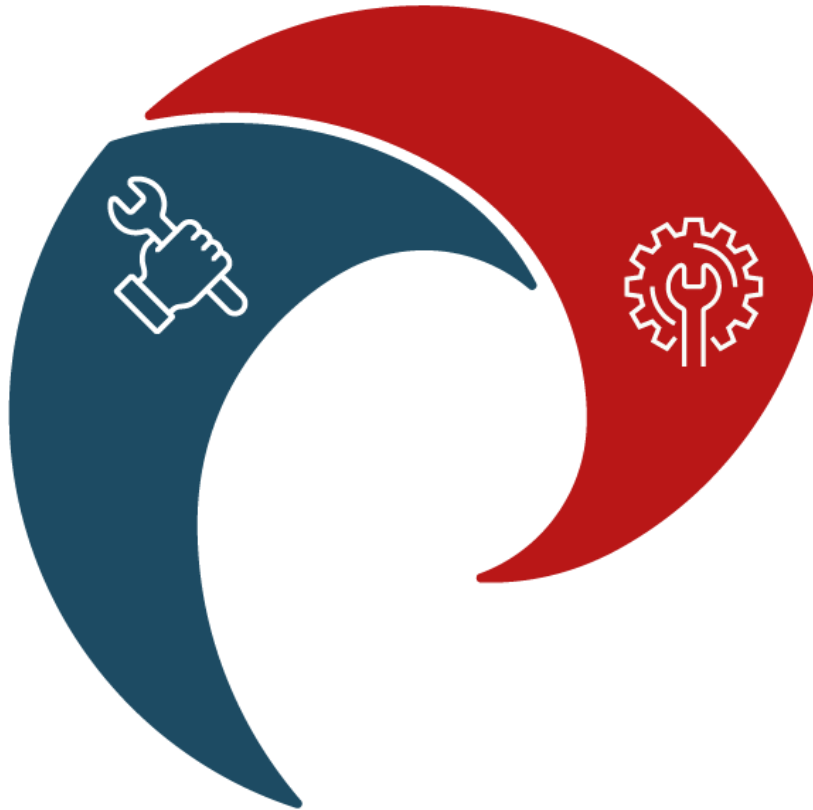
Material	Short Description	Long Description	MANUFACTURER_NAME_1	MANUFACTURER_PART_NO_1	VENDOR_URL	SHORT_DESCRIPTION	LONG_DESCRIPTION	UNSPSC_CODE	UNSPSC_DESCRIPTION	CLASS	CHARACTERISTIC_NAME	CHARACTERISTIC_VALUE
1568957	VALVE,SOLENOID,1IN,NPT,2-WAY,SST	VALVE,SOLENOID,1IN,NPT,2-WAY,SST DIAPHRAGM OFFSET PILOT 2-WAY SOLENOID VALVE 1IN NPT NORMALLY CLOSED STAINLESS STEEL	PARKER	16F24C6164AAFEC05	https://www.hydradyne.com/product/16f24c6164aa	VALVE:SOL; 1 IN,2-WAY,NC,1 IN,NPT	VALVE:SOLENOID;NOMINAL SIZE:1 IN,CONFIGURATION: 2-WAY,NC,ORIFICE SIZE:1 IN,PORT CONNECTION:NPT,C OIL RATING:120 V AT 60 HZ,110 V AT 50 HZ,BODY MATERIAL:316 STAINLESS STEEL,ENCLOSURE:NEMA 7/9,PRESSURE RANGE:100 PSI FOR OIL,150 PSI FOR AIR/WATER,SOFTGOODS:BUNA-N SEAL,ADDITIONAL FEATURES:PILOT-OPERATED,OFFSET DIAPHRAGM	40141605	Solenoid valves	VALVE_SOLENOID	NOMINAL SIZE	1 IN
											CONFIGURATION	2-WAY,NC
											ORIFICE SIZE	1 IN
											PORT CONNECTION	NPT
											COIL RATING	120 V AT 60 HZ,110 V AT 50 HZ
											BODY MATERIAL	316 STAINLESS STEEL
											MATERIAL SPECIFICATION	
											ENCLOSURE	NEMA 7/9
											PRESSURE RANGE	100 PSI FOR OIL,150 PSI FOR AIR/WATER
											SOFTGOODS	BUNA-N SEAL
											CERTIFICATION/STANDARD	
											ADDITIONAL FEATURES	PILOT-OPERATED,OFFSET DIAPHRAGM



MRO Spares Data Transformation

INPUT DATA	CLEANSED DATA	CLEANSED, STANDARDIZED AND CONSOLIDATED DATA	ENRICHED DATA
BALL BEARING 15x35x11	BALL BEARING, 15MM,35MM,11MM	BEARING,BALL, 15 MM,35 MM,11 MM	BEARING,BALL;DEEP GROOVE,15 MM ID,35 MM OD,11 MM W,6200 SERIES,1 ROW,1 SHIELD, STEEL,PRESSED CAGE,2 DEG MISALIGNMENT,8.06 KN DYNAMIC,3.75 KN STATIC
BALL BRG 15 X35 X11 MM	BALL BEARING, 15MM,35MM,11MM		
BALL BEARING Ø15X11X35 MM	BALL BEARING, 15MM,35MM,11MM		
15X11X35 BEARING BALL	15MM,35MM,11MM,BEARING BALL		
CARTRIDGE FUSE FAST ACTING 600 VAC 30 A	CARTRIDGE FUSE, FAST ACTING, 600 VAC, 30 A	FUSE,CARTRIDGE, FAST ACTING,600 VAC,30 A	FUSE,CARTRIDGE;FAST ACTING,600 VAC,30 A,200 KA,END CAP,NICKEL PLATED BRASS,MELAMINE TUBE,CSA
CARTRIDGE FUSES FAST ACTING 600 VAC 30 AMPERE	CARTRIDGE FUSE, FAST ACTING, 600 VAC, 30 A		
FAST ACTING CARTRIDGE FUSES 600 VAC 30 AMP	FAST ACTING CARTRIDGE FUSE, 600 VAC, 30 A		
CARTRIDGE FUSES 600 VAC 30 AMPERE, FAST ACTING	CARTRIDGE FUSE, 600 VAC, 30 A, FAST ACTING		
45 DEG ELBOW PIPE ADTPTR	45 DEG, ELBOW, PIPE, ADAPTER	ELBOW,PIPE,ADAPTER,45 DEG,1-1/2 IN	ELBOW,PIPE;ADAPTER,45 DEG,1-1/2 IN,SCH 40,200 PSI,CARBON STEEL,BLACK OXIDE,ASTM A106,1-1/2 IN NPS X 1-1/2 IN NPS,1.94 IN CENTER TO END DISTANCE
1-1/2 INCH X 45 DEGREE PIPE ELBOW	1-1/2 IN, 45 DEG, PIPE, ELBOW		
pipe elbow 45° 1 1/2" n° 45	PIPE, ELBOW, 45 DEG, 1-1/2 IN		
45° 1 1/2"pipe elb	45 DEG, 1-1/2 IN, PIPE, ELBOW		
BUSH TAPER 4300 LB-IN TORQUE	BUSH,TAPER, 4300 LB-IN TORQUE	BUSHING,TAPER LOCK,1-5/8 IN,4300 LB-IN TORQUE	BUSHING,TAPER LOCK;1-5/8 IN BORE,1-1/2 IN L,3/8 X 1/8 IN KEYWAY,2-1/8 IN BOLT CIRCLE,3/8 X 5/8 IN LOCK SCREW,2 SCREW,STEEL,4300 LB-IN TORQUE
BUSHG 1-5/8 TAPER LCK	BUSHING, 1-5/8 IN, TAPER LOCK		
1-5/8" TAPER LOCK BUSHING	1-5/8 IN, TAPER LOCK BUSHING		
TORQUE 4300 LB-IN TAPER BUSHING LOCK	TORQUE 4300 LB-IN, TAPER BUSHING, LOCK		

Prometheus Methodology: “Get it Clean, and Keep it Clean”



1

BUILD

- Internationally
- Recognized
- Standards
- Business Rules
- Enterprise Taxonomy
- Data Quality Culture

2

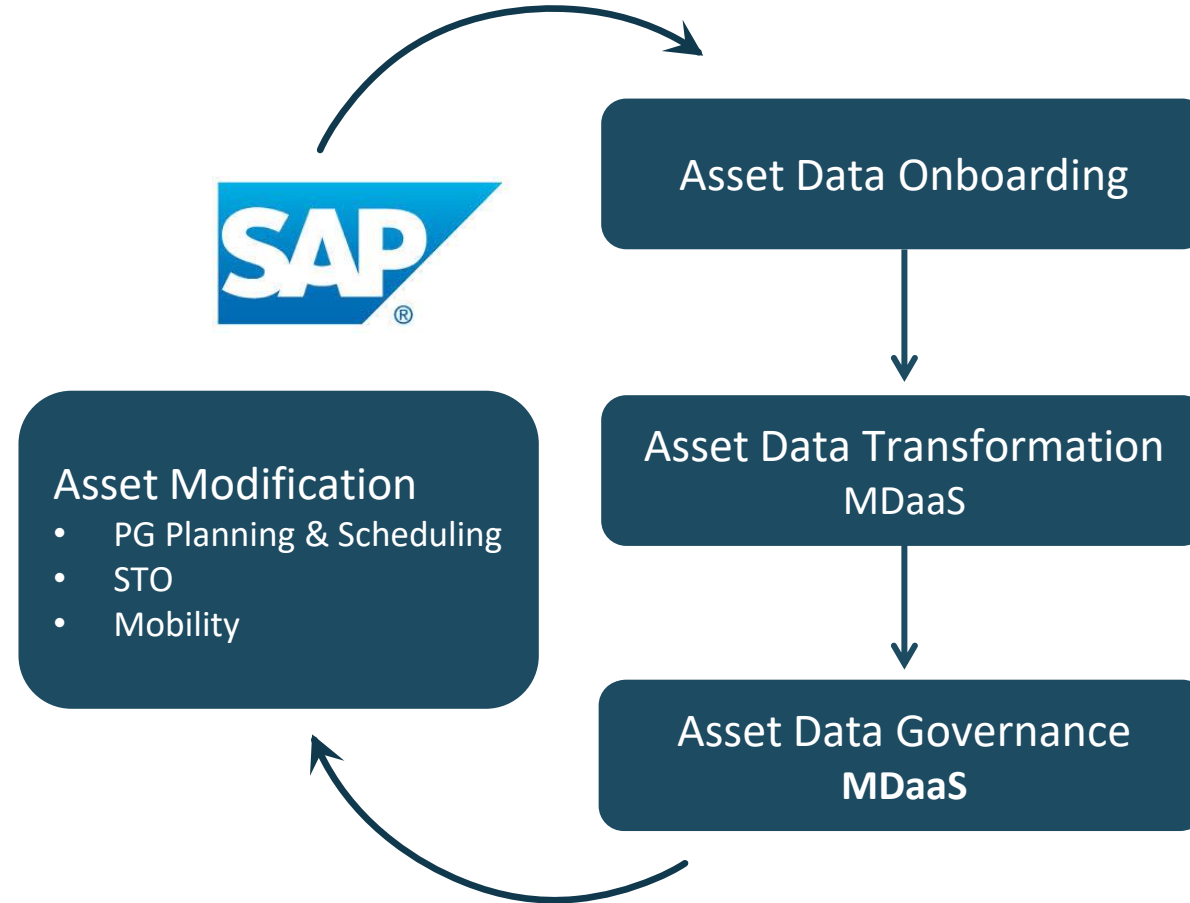
FIX

- Data Quality
- Improvement
- Data Quality Monitoring
- Control Data Process
- De-Duplication
- Unstructured Data



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Questions?

Thank you



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