WKM Triple Offset Valves
Quality, bi-directional valves for critical applications in the most demanding markets worldwide
Manufacturing
Cameron’s WKM® triple offset valve (TOV) includes the manufacturing excellence and commitment to quality that comes with all of Cameron’s products. Combined with arduous qualification and testing processes that simulate valve life cycle, the WKM TOV sets a new benchmark for performance.

Organizational Support
Our commitment to global support and strategic networks brings the WKM TOV to markets where it’s needed, when it’s needed – fully designed, tested, qualified, and backed by Cameron. The WKM TOV meets the demanding requirements for bi-directional shutoff, delivery, and quality.

Cameron
Our expanding network of strategic partners helps distribute high-quality, daily service valves into critical applications. With millions of valves manufactured by Cameron and delivered around the world, our portfolio is proudly led by flagship brands such as WKM, DEMCO®, NEWCO®, and NUTRON® valves as part of the Cameron family.

- Strong global distribution network
- Industry leader in valve technology and innovation
- Broaderest portfolio of 6D valves in the industry
- In-house engineering and manufacturing
- Commitment to health, safety, and the environment
Table of Contents

WKM TRIPLE OFFSET VALVES

Triple Offset Geometry......................................................................................................... 2
Major Markets......................................................................................................................... 3
Applications............................................................................................................................ 4
Part List 3” to 24” .................................................................................................................. 5
Lug Pattern Dimensions 3” to 24” .............................................................. 6
Short Pattern Dimensions 3” to 24” ................................................................. 8
Long Pattern Dimensions 3” to 24” ................................................................. 10
Gear Operator Dimensions................................................................................................. 12
Pressure/Temperature Rating in PSIG .............................................................. 14
Cv vs. Disc Angle .......................................................................................................... 15
Weights, Torques ............................................................................................................ 16
How to Order .................................................................................................................. 17
The WKM TOV completes Cameron’s reliable, performance-proven, quarter-turn butterfly valve portfolio. The true triple offset geometry of this valve allows for bubble-tight sealing to create a fully bi-directional zero-leakage* shut-off valve.

Backed by our world-class engineering, manufacturing, and sourcing expertise, the WKM TOV provides a trusted solution ideal for critical applications. Rely on Cameron’s dedication to high-quality standards, competitive manufacturing processes, and world-class support for total valve life cycle support.

**FEATURES AND BENEFITS**

- True triple offset geometry
- Fully bi-directional zero-leakage* shutoff
- Field replaceable metal seat
- Life cycle tested as a bubble-tight bi-directional valve
- Standard bearing seals
- Self-centering disc
- Available in a wide range of configurations: lug, short (ISO), and long pattern
- Carbon and stainless steel standard; other materials on request

*Per API 598
MAJOR MARKETS

Power and Steam (600# and below)
- District heating
- Bitumen

Petrochemicals (refining and chemicals)
- Coking
- Reformers – cracking
- Tank switching
- Ethylene
- Butadiene
- Isocyanates – plastics

Tank and Terminal
- Switching
- Long pattern for gate valve replacement
- Storage of all types of hydrocarbons and chemicals

Upstream Production
- Process equipment
- Separation – molecular sieve
- Switching
- Floating production platforms
- Manifolds
- Slurry – oil sands
- Secondary recovery

FLANGE CONNECTIONS

LUG PATTERN
PER API 609

SHORT PATTERN
PER ISO 5752/API 609

LONG PATTERN
PER ANSI B16.10/API 609
APPLICATIONS

Oil and Gas
- Isolation of reservoirs and storage
- Steam piping and condensate
- Cooling water systems
- Desalination
- Desulfurization systems

Compliance and Specifications
- API STD 609
- CE/PED certified
- ASME B16.34
- API STD 598
- ISO-5752 flange dimension
- ASME B16.47 for Series B mating pipe flange dimensions for valve sizes 26" and larger, Classes 150 and 300
- ANSI B16.10
- MSS-SP-55
- API STD 607, latest edition for fire testing
- Fugitive-emissions testing*

*Pending

Pulp and Paper
- Boiler isolation equipment
- Liqueurs: green, white, and black
- Whitewash
- Cooling water, boiler feeding, steam, and co-generation systems

Offshore Platforms
LNG Storage
Transportation District Heating

Media
- Steam (saturated and superheated)
- Geothermal steam
- Hydrocarbons
- Hydrogen
- Oxygen
- Cryogenic fluids
- Hot gases
- Sulfur (tail gas)
- Chemical solvents
- Chlorinated solvents
- Flare gas
**Part List 3” to 24”**

**ASME CLASS 150 AND 300**

**Lug, Short, and Long Pattern**

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**Notes:**

Δ Part not shown

* Recommended spare parts

1. Basic design – application requirements of API 609B and ASME B16.34
2. Pressure test – API 598
3. End flanged – ASME B16.5
4. Face-to-face dimensions and tolerances – API 609B
5. Fire test – API 607
6. Materials meet the requirements of NACE MR-01-03 and MR-01-75
Lug Pattern Dimensions 3” to 24” per API 609
ASME CLASS 150 AND 300

All dimensions are in mm unless otherwise specified.
Face-to-face dimensions and tolerances per API 609B.
Lug Pattern Dimensions 3” to 24” per API 609
ASME CLASS 150 AND 300

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All dimensions are in mm unless otherwise specified.
Face-to-face dimensions and tolerances per API 609B.
## Short Pattern Dimensions 3” to 24” per ISO 5752/API 609

**ASME CLASS 150 AND 300**

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All dimensions are in mm unless otherwise specified.
Face-to-face dimensions and tolerances per API 609B.
Short Pattern Dimensions 3” to 24” per ISO 5752/API 609
ASME CLASS 150 AND 300

All dimensions are in mm unless otherwise specified.
Face-to-face dimensions and tolerances per API 609B.
Long Pattern Dimensions 3” to 24” per ANSI B16.10/API 609
ASME CLASS 150 AND 300

All dimensions are in mm unless otherwise specified.
Face-to-face dimensions and tolerances per API 609B.
Long Pattern Dimensions 3” to 24” per ANSI B16.10/API 609
ASME CLASS 150 AND 300

All dimensions are in mm unless otherwise specified.
Face-to-face dimensions and tolerances per API 609B.
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## Gear Operator Dimensions

### Gear Dimensions

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* WCB permissible, but not recommended for prolonged use above 800º F (427º C).
** Above 800º F (427º C) stainless steel body valves, stem material to be determined.
(A) Low-temperature gas test per API 598 for services below -20º F (-29º C) (316SS and PTFE seals).
(a) Flanged-end valve ratings terminate at 1000º F (538º C) for ANSI 150 Class.
The flow coefficient, or $C_v$ value, is used to describe the inherent flow capacity of a valve. This $C_v$ value is defined as the number of US gallons of water/min at standard conditions (60° F and 14.7 PSIA) that will flow through a valve at a constant 1.0-psi pressure drop. The capacity of the valve with other fluids at various flowing conditions can be calculated using this basic $C_v$ value. The following tables indicate the $C_v$ values at various disc angles of opening.

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</tbody>
</table>

#### Valve Operating Torques (in.-lb)

<table>
<thead>
<tr>
<th>Valve Size in. (mm)</th>
<th>Preferred Direction</th>
<th>Non-Preferred Direction</th>
<th>MAST*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Seating</td>
<td>Unseating</td>
<td>Seating</td>
</tr>
<tr>
<td>3 (80)</td>
<td>75</td>
<td>192</td>
<td>214</td>
</tr>
<tr>
<td>4 (100)</td>
<td>142</td>
<td>363</td>
<td>404</td>
</tr>
<tr>
<td>6 (150)</td>
<td>301</td>
<td>678</td>
<td>753</td>
</tr>
<tr>
<td>8 (200)</td>
<td>567</td>
<td>1276</td>
<td>1418</td>
</tr>
<tr>
<td>10 (250)</td>
<td>1024</td>
<td>2304</td>
<td>2560</td>
</tr>
<tr>
<td>12 (300)</td>
<td>1440</td>
<td>3240</td>
<td>3600</td>
</tr>
<tr>
<td>14 (350)</td>
<td>2918</td>
<td>6565</td>
<td>7294</td>
</tr>
<tr>
<td>16 (400)</td>
<td>4097</td>
<td>9218</td>
<td>10243</td>
</tr>
<tr>
<td>18 (450)</td>
<td>5627</td>
<td>12,660</td>
<td>14067</td>
</tr>
<tr>
<td>20 (500)</td>
<td>7023</td>
<td>15,803</td>
<td>17559</td>
</tr>
<tr>
<td>24 (600)</td>
<td>11066</td>
<td>24,899</td>
<td>27666</td>
</tr>
</tbody>
</table>

* Maximum allowable stem torque
**Figure Number**

The figure number shown below identifies specific valve configuration details of WKM triple offset valves such as valve type, pressure class, end connections, body/bonnet and trim materials, and special features.

Please specify end connections, body materials, and trims not listed below.

When placing an order, refer to the respective product section of the catalog for size availability. A detailed description must be included with any special orders.

**Fig. 91F-CBN-NC-FS-WGO**

- **Type**: 9 – Triple Offset
- **Pressure Class**: 1 – 150, 3 – 300, 6 – 600
- **End Connections**: F – Flanged (Long Pattern to B16.10), P – Lug, Q – ISO 5752 Flange (Short Pattern), Z – Wafer, W – Butt Weld
- **NACE**: NC – NACE MR0175/NACE MR0103
- **Fire-Safe**: FS – Fire-Safe API 607

**HOW TO ORDER**
HSE Policy Statement
At Cameron, we are committed ethically, financially and personally to a working environment where no one gets hurt and nothing gets harmed.